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THE GREAT SAHARA:

WANDERINGS SOUTH OF THE ATLAS MOUNTAINS.

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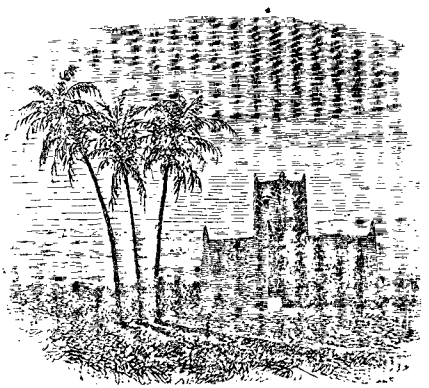
By H. B. TRISTRAM, M.A., F.L.S., &c.,

MASTER OF GREATHAM HOSPITAL,
AND DOMESTIC CHAPLAIN TO THE EARL OF DONOUGHMORE.



Marabout of Berryan

WC.C.2

With Maps and Illustrations.

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AND CHARING CROSS.

TO

MRS. BURDON

(OF CASTLE EDEN),

The Lady,

FIRM IN FRIENDSHIP,

WHO SPED MY PARTING

AND WELCOMED MY RETURNING

STEPS,

THESE NOTES ARE DEDICATED.

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PREFACE.

VARIOUS circumstances had induced me to select Algiers as a winter residence, when compelled by ill health to quit my northern home. Egypt had been recommended, but the cost and distance forbade it. Malta and Malaga possessed but few attractions for one whose favourite recreation was natural history. Algiers presented the advantages of easy access from Marseilles, of French conveniences, and of a climate which, if inferior to that of Egypt, yet certainly is more equable in spring than any to be found on the northern shores of the Mediterranean.

With strength, by God's blessing, rapidly recruited, many excursions were made into the interior; and as spring advanced, these on two occasions were pushed beyond the Atlas into the Northern Sahara. Here an atmosphere bright, dry, and invigorating convinced me that I had found the true sanatorium for any one sufficiently convalescent to dispense with the luxuries of city life.

From the officers of the French outposts, among whom I would venture gratefully to name General Gastu, MM. le Capitaine Vinçon and le Capitaine Dastugue, both "du Génie," I received unbounded hospitality, and through them was enabled to acquire the friendship of several nomad chiefs; while a very cursory survey promised abundant objects of interest in natural history to reward more patient investigation.

Being advised by my medical friends to pass another

season in a warm climate, I formed the plan of spending my second winter altogether in the Sahara, and his Excellency le Maréchal Randon, Governor-General of Algeria, most kindly seconded the scheme, by offering me all the assistance and protection in his power throughout the vast regions tributary to, or in alliance with, the French.

In company therefore with a friend, also in quest of health, the Rev. James Reed, to whose society I owe many a happy hour, and to whose pencil this volume owes many of its illustrations, these wanderings were commenced in September, and continued until the following spring.

The hasty sketches taken on the spot, while they have lost none of their original truth, have gained both beauty and vigour from the graceful hand of my kind and skilful young friend, Miss Salvin; who will, I am sure, pardon the insertion of her name among those to whom my gratitude is due.

The following pages are almost a literal transcript from my daily journal, composed at such spare minutes as could be snatched from the urgent labours of camping, cooking, horse-feeding, and preserving specimens; and generally in that recumbent posture which is supposed to woo sleep rather than the Muses.

They can therefore have no claim upon the attention of the public, except in so far as they are a faithful reflection of occurrences and impressions in a country the greater portion of which had not been before traversed by any European, and where, as I believe, no English traveller but ourselves has ever wandered. The northern portion, or "Hauts Plateaux," of the

Sahara is well known to the French; but of the country of the Beni M'zab and the districts south of it no account, I believe, has yet been published in any European language, beyond the meagre and often most inaccurate descriptions gathered by General Daumas from native travellers.

Geographical research appears at the present moment to be concentrated on the great continent of Africa; and Livingstone, Barth, Petherick, and Speke have been revealing to us countries but yesterday undreamt of. Still, in less mysterious regions there may be some scraps of interest left for tribes and oases hitherto known only by name, and which must soon fall more directly under European power. The policy of France up to the present time has been to follow the example of her Roman predecessors, to leave these friendly or neutral tribes in the enjoyment of self-government, and to treat the Sahara as a natural frontier. That policy, we learn from the 'Moniteur,' is now about to be reversed. No natural frontier is to be acknowledged in Africa; and we are promised in the coming winter a regularly organized expedition, which is to push through the M'zab, Waregla, Touat, and the Touareg, to Timbuctoo, and so to unite French Algeria with French Senegambia.

How far such an advance is likely to result in anything beyond the destruction of the unhappy Corps d'Afrique engaged in it may be conjectured by the difficulties which beset even in the first portion of the route a small party of travellers enjoying the assistance of the natives.

Against the suspicions of the inhabitants of the oases, and the Parthian attacks of the indomitable Touareg, it

seems scarcely possible that any armed force can achieve the march, or, if it should do so, that it can add aught but the most empty glory to the survivors and their country.

To the student of humanity the interest of the Sahara appears to centre in the M'zab and the other oases here described, whose inhabitants, the descendants of the ancient Numidians, though generally confounded in European ideas with Arabs and Moors, have contrived for centuries to preserve their language and municipal independence, while surrounded by the fierce hordes of Arabian and Touareg intruders.

These islanders of the desert, utterly cut off from all intercourse with a higher civilization, have preserved a republican and federal government as perfect and complex as that of Switzerland; and though unhappily fallen under the yoke of the false prophet, have remained uncontaminated by many of the grosser vices of Islamism.

Such races bespeak a noble ancestry, and under the benign influences of a pure and simple Christianity may yet prove themselves no unworthy offspring of that Numidia and Libya which even in decrepitude could produce an Augustine and a Cyprian.

Castle Eden, July, 1860.

CONTENTS.

CHAPTER I.

Steam from Marseilles — Motley assemblage — Struggle for berths — A Sunday at sea — American sceptic — Minorca — Migratory birds — View of Algiers — Harbour — Old corsair — Grand Place — Statue of Duke of Orleans — Mosques — Costumes — Omnibuses — Governor's return from Kabylie — Soldier's burial — Anecdotes of the war — General Yusuf — Description of the Djibbeb, or Dance of the Beni Yssou — Negro sacrifices — Missions — Mr. Weiss. Page 1

CHAPTER II.

Preparations for travel — Dragoman — Tents — Licence for arms — Letters — Advice of the governor — A mulish baggage-horse — Disastrous start — Fort l'Empereur — Orphélinat — Dely Ibrahim — Protestant institute — Douera — Interesting prisoners — Bouffarick — Successful colonization — Beni Mered — A valiant guard — Mausoleum of the kings of Mauritania — Lake Halloula — Blidah — Gorge of the Chiffa — Scenery — Monkeys — Arab Gourbis — Making game of a naturalist — Meeting Bedouins — Dog lost — Taking an inn by storm — Cheap lodgings — Mines of Mouzaïa — Medeah — Native review — A Sheik's farewell of his son — Eagerness for Parisian education 21

CHAPTER III.

Sunday at Medeah — Protestants in Algeria — First night in a tent — Berrouaghuia — Spahis — Their organization — A strange pet — Open forests — Water forgotten and well dry — A chace after our horses — The Cheliff — Boghar — Panorama of the Sahara — Roman occupation of North Africa — Triple line of posts — Dependence of the Nomads on the Tell — Musitazana — French system of military government — Statistics — Taxation — Bokhari — Arab café — Gardens — Botanical garden — Silos, or underground granaries 42

CHAPTER IV.

Departure from Boghar — Fainéant farrier — Lock the door — Wayside cabaret — In the Sahara — Camels — Jacob's flocks — A mirage — Paradise of waterfowl — Flamingoes — Plovers — The Sheik Bou Disah — Falconry — A bustard-hunt — The sandgrouse — Costly birds — Sunday in the desert — Natron deposits — Whirlwinds — Pillars of sand — Bedouin on the march — Camel-tents — Aïn Oosera — Formation of the Steppes — Geologic record — The Zahrez — Fast in the sand — Salt-rocks — Intelligent guide — Manufacture of saltpetre — Note on the salt-hills of Herodotus .. .. Page 59

CHAPTER V.

Roman ruins — Djelfa — A countryman in the Sahara — A dilatory Dragoman — A cold sponge — Dr. Reboud — Botany of the Desert — Saharan pool — A young wife — Aïn el Ibel — Forced colonization — Sheep-farming — Rat à trompe — The general hoaxed — Bedouin shepherds — Large camp — The commander's tent — Hospitable cook — Commandant Marguerite — Battle of the horses — Hairbreadth escape — Touareg embassy — Puits Enez — Honest companions — Arrival at El Aghouat 78

CHAPTER VI.

Laghouat — The view from its citadel — Carpeted roofs — Turkish bath — Storming of Laghouat — Native heroine — Manufacture of morocco leather — Value of pomegranate rind — Teeth to let — Gardens — Cultivation of the date-palm — Date-wine — A female saint's reward — Geological features — Primitive plough — Barley cultivation — Birds — Dayats — A wounded gazelle — An equine practical joke — Squadron of donkeys — A sportsman's dinner-party — Kouskoussou — Boat-launch at Laghouat — Daring exploit of the Commandant — Omar's rebellion — A new Dragoman — The Kadi of Berryan — Scarcity of water-skins — Farewell party .. 92

CHAPTER VII.

Departure from Laghouat — Early rising — Arab cavaliers — The Dayats — Birds of prey — Unsuccessful gazelle-hunt — The terebinth — Deborah's oak — Night camp in the Sahara — Desert graves — Achmed lost — Perils of the wastes — Vain search — A tipsy guard — Tilghremt — Troop of ostrich — The ostrich-hunt — Ostrich-eggs — Rocky Chebkha — A shower in the desert — Rivers from home — Sanguine hopes — A murdered caravan — Berryan 110

CHAPTER VIII.

Sudden view of Berryan — Strange contrast — Imposing procession — The reception by the Parliament — The Kadi in full dress — A state dinner — Hospitality by taxation — Early callers — A travelled Mozabite — Arab tribe — Primitive loom — An auction — Traditions of the M'zab — Moab and Ammon — Spanish traveller — Saharan sewerage — Dove-shooting — Cultivation of gardens — Novel wells — Ploughs — Forbidden sweets — Degenerate kouskousou — An exigéant Dragoman — The Kadi's farewell .. .. .. Page 124

CHAPTER IX.

A narrow escape — A suspiciously-faithful guard — Omar on theology — Future of Islam — Frost in the desert — A morning scene by our camp-fire — View of Ghardaïa — Street scene — The guest-house — Political system of the Beni M'zab — Unpaid officials — Zickar, or wedding-dance — A deserted city — The Wed M'zab — Gardens — Commemoration of founders — A funeral feast — Largesse — Spirit licence — Maine liquor-law — Value of coffee and tea — The lost found — Return of Achmed — My ratcatcher — Lizards and mice — Jewish jewellers — Markets — Manufactures — Tannin — Dyes — Caravans — M'zab toilet — Slavery 138

CHAPTER X.

Mellika — The sacred city — Achmed's fame — Inquisitive maidens — The old Kadi — Wareglans — Smoking keef — Gorgeous sunset — Love of tobacco — Horse-borrowing — A lawsuit — Municipal duties of a Kadi — Beni Isguen — The city of soldiers — A travelled Mozabite — White camels — Novel mode of quarrying — House-building by subscription — Simple loom — Rifle volunteers — Ball-practice — Ideas of England — An unpopular chieftain — El Atf — Hospitality — Bounoura — Metlili — The Chaamba — Our host — Parting gifts 159

CHAPTER XI.

Departure from Ghardaïa — The desert again — Wed N'ça — Vegetation in the wilderness — Effects of moisture — Ostriches — Antelope — An assault — Achmed's opinion of his race — Guerrara — Full moon — Festivities — Intestine warfare — Use of the arch — Tombs of the saints — Weddings — Dress — Demands on a hakeem — A traveller from Timbuctoo — Gh'adames — Touat — Achmed's rebellion — Amusing trial — The oldest inhabitant — Farewell to the M'zab .. 175

CHAPTER XII.

HISTORY AND INSTITUTIONS OF THE M'ZAB.

History of the M'zab — Herodotus — Greek and Roman traditions and reports—Gætuli and Melano-Gætuli—Touareg—Distinctness of language — Arab tradition — Jewish tale — Legends among the M'zab — Historical facts commence only with emigration from Oran — Temporary colony at Waregla — Berryan and Guerrara — Customs — Religious peculiarities — No dervishes — French interference — Form of excommunication — Shame wiped out in blood — Poor-laws — Public works — Taxation — Industry — Obstinacy — Freemasonry Page 195

CHAPTER XIII.

Stony desert — Wed N'ça — New plants — Caution in camping — Story of a midnight attack — Asleep on guard — Threatening clouds — El Guentra — Landmarks — A homesick boy — Hardships of camel-drivers — Wed M'zab — A night alarm — Preparations for an encounter — Friends after all — A friendly chat — First sight of Waregla — Rumours of war — Descent to the oasis — A saint's revenge — Halt at the gate — Sidi Zobeir — An Arab aristocrat — A feast — Public toilet — Ride through the city — Ruined palace — A costly Sultan — History of Waregla — Jews — Old coins — Gardens — Attempt at colonization — Geological speculations .. 210

CHAPTER XIV.

The Touareg — Embassy to Algiers — Dr. Barth — Touareg passport — Djebel Hoggar — Hidden wells — Mahari, or white dromedaries — Costume of the Touareg — Arms — Language — Troubles at Waregla — Marocain mountebanks — A tea-party with an agha — Report of a battle—Our host's brother slain—Hasty retreat—Preparation of a chieftain's letter — Ride to N'goussa — Singular tombs — Arab honesty — A N'goussa feast — Alarms of robbers — A watchful guard 234

CHAPTER XV.

An early start — Moonlight march — An active guide — Which is the route? The enemy's camp-fire — Recklessness of Arabs — Halt at daybreak — Skulkers detected — A cavalry charge and capture — The prisoner's story — Traces of a struggle — Dromedary-men — Camels give in — Weary march — Hadjira at last — A Mussulman saint — A quiet resting-place — Escape of a fugitive to the city of refuge — Visit of ceremony — State reception — Devout horsemen — Aïn Bahrdad — Story of the Mekhasni's exploit — A vigilant shepherd — An unhealthy city — Blad et Amer — Nature and art in decay — Descent into the Wed R'hir 254

CHAPTER XVI.

Tuggurt — Confines of French dominion — Native troops — Hungarian sergeant — The palace of the Bey — Miscellaneous inhabitants — Imperial furniture — An ancient throne — Visit of the Bey — Arrival of French column — Varied equipments — The camp pitched — Why do we travel? — Night-stroll in the camp — Christmas cheer — General Desvaux — African falcons — Cotton — Meeting with a countryman — Political ideas of a native soldier — Marshes and lake of Tuggurt — A new fish — Geological speculations .. .. Page 268

CHAPTER XVII.

HISTORY AND DESCRIPTION OF TUGGURT.

Doubtful Roman remains — Tuggurt the metropolis of the Wed R'hir — Allusions of Shaw and Leo Africanus — Political constitution — A fortunate shepherd — Wars with Constantine — Capture by General Desvaux — Deposition of the Sultan — Mussulman Jews — Jewellers — Massacre of the Beni M'zab — Ruined mosque — Horticulture — Trade and commerce — Ancient artesian wells — Pestilential miasma — The Dour, or "Turn-again" of invaders .. 279

CHAPTER XVIII.

Starved out of Tuggurt — A refractory Dragoman — Temaçin — A Wed R'hir city — Busy market-scene — Zouïa — Solitary French officers — A sublimated marabout — Royal and Imperial gifts — A misplaced cart — Warrior saint — A Bedouin dominie — Cheerful soldiers — Omar returns — The priest's steward a valuable guide — Weary desert ride — Solitary well — Breasting the sand-waves — Souf at last — The hospitable Khalifat — Magnificent reception — A night of plenty after a day of scarcity — Saharan's opinion of English and French religions — Dryness of Souf — Domed roofs — Female ornaments — Market — Purchases of silk — Gardening under difficulties — Birds and beasts — Shooting at Souf 291

CHAPTER XIX.

The warrior Sheik of Souf — A desert foray — Tunis and France — Commercial politics of the Sahara — Reports of Roman cities in the interior — The prison of Souf — The wild ass of the Sahara — Arrival of a horseman from G'hadames — Capitaine Bonnemain — Trade — Dates — Fabrics — Caravans — Wonderful powers of sight — The Arabs of Souf — Our departure — Taïbeit — A nocturnal in-

truder — Return to Tuggurt — Evening ride — Camp and villages — Palm-trees by moonlight — A military mass — A warrior's sermon in a mosque — Tact of General Desvaux — Dinner with the commandant — The fennek or desert fox .. .. Page 313

CHAPTER XX.

St. Martin's brigade — The return convoy — Strange medley — Sand-storm — First bivouac — A forced sale — Drunken troopers missing — The Curé of Batna—Tamerna and its artesian well — St. Martin's mode of supplying the commissariat — Tribute-money — A post-courier in the desert — El Baadj — Solitary caravanserai — The Sheik's entertainment — Judge of assize — Cases civil and criminal — Prompt decisions and speedy justice — First glimpse of the Atlas — Oumach — Mons Aurasius — Approach to Biskra — Captain Pigalle's mansion — Return to civilization 330

CHAPTER XXI.

Biskra — Parisian tourists — Struggle of the desert and the Tell — Botanical garden — Farms and gardens — Omar's faithlessness — Formal trial and judicial separation — Our ex-warrior groom — Novel application of the trial by ordeal — Ingenuity of the detectives — Hot spring — Peculiar fish — Our last Sunday at Biskra, and common service — Departure — Col de Sfa — El Outaia — Salt-mountain — Natural warm baths — Benighted on the plain — The last of the oases — Gorge of El Kantara—Roman bridge—Grandeur of the pass — Farewell to the Sahara 345

APPENDICES.

I. On the Physical Geography of the Sahara 359
II. On the Geological System of the Central Sahara of Algeria 368
III. On the History of the Sahara 377
IV. Catalogue of the Mammals of the Sahara 382
V. Birds of the Sahara 389
VI. Reptiles of the Sahara 405
VII. Catalogue of the Mollusca of the Sahara 408
VIII. Catalogue of Plants collected in the Algerian Sahara, arranged after the Natural System 410

LIST OF ILLUSTRATIONS.

OASIS OF EL KANTARA, THE GATE OF THE SAHARA .. *Frontispiece.*
MARABOUT OF BERRYAN .. .. *Title-page.*
MAP OF NORTHERN DESERT OF AFRICA .. .. ..*To face page* 1
KOUBBER ROUMEAH — MAUSOLEUM OF THE MAURITANIAN KINGS .. .. *To face* 30
M'ZAB POTTERY ON GRAVES 130
SEMAAR OF GHARDAIA 142
GATE OF GHARDAIA .. .. *To face* 143
GATEWAY AND GUEST-HOUSE, GHARDAIA 143
CITY OF MELLIKA 159
SEMAUR TOWER, EL AT'F, BENI M'ZAB .. .. .. *To face* 170
COLOSSAL CAIRNS 177
TOWER ON THE WALL, GUERRARA 179
MARABOUT SOUTH-WEST OF GUERRARA 181
GATEWAY OF GUERRARA .. .. *To face* 182
MARABOUT NEAR GUERRARA 192
ISOLATED ROCK NEAR GUERRARA 210
DJEBEL SOULTAUN, NEAR WAREGLA .. .. *To face* 218
BAB-EL-SOULTAUN, THE SULTAN'S GATE, WAREGLA .. *To face* 222
MAIN STREET AND ENTRANCE TO MOSQUE, WAREGLA 226
TOMBS, N'GOUSSA 250
GATE OF TUGGURT .. .. *To face* 268
MOSQUE IN THE WED R'HIR .. .. *To face* 284
MOSQUE TOWER, TEMAÇIN 293
MOSQUE GATE, ZOUIA 295
MARABOUT NEAR TUGGURT, ON THE ROAD TO SOUF 299
WELL IN THE WED R'HIR .. .. *To face* 300
ENTRANCE TO EL OUED SOUF 307
STREAM AND PALM-GROVE, WED R'HIR .. .. .. *To face* 333
MAP OF THE ALGERIAN SAHARA .. .. *At the end.*

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THE GREAT SAHARA.

CHAPTER I.

Steam from Marseilles — Motley assemblage — Struggle for berths — A Sunday at sea — American sceptic — Minorca — Migratory birds — View of Algiers — Harbour — Old corsair — Grand Place — Statue of Duke of Orleans — Mosques — Costumes — Omnibuses — Governor's return from Kabylie — Soldier's burial — Anecdotes of the war — General Yusuf — Description of the Djibbeb, or Dance of the Beni Yssou — Negro sacrifices — Missions — Mr. Weiss.

EMBARKED on the densely crammed "Louqsor," we encountered a motley crowd of passengers. Military officers, Government officials, Zouaves, soldier convicts, horned cattle, no near relatives of the Durham ox; greyhound-like sheep, larger in the horn than in any other limb; German colonist families, generally comprising three generations; dogs, a sprinkling of turbaned Moors, and a dozen dark-looking Jesuits in shovel hats and long cassocks, composed the medley assemblage. Government passengers having prior claim, we contented ourselves with fore sleeping-cabins, and the privilege of entering the saloon and promenading aft. Vain indulgence, with families bivouacking over the whole deck. Happily, the swell of the Gulf of Lyons, after leaving the fine headlands which encompass Marseilles, rendered our dinner-party select. Not so the sleeping-berths at night. We found our dog-holes tenanted, and in vain sent the steward to eject the

intruders; at length the intervention of the lieutenant of the watch drew forth, after protracted discussion, one priestly occupant from P.'s berth, behind whom lay secreted a good-natured-looking burly monk, with moustache and flowing beard—a true Friar Tuck. Then it transpired that every one had got into the wrong berth, and a general action of ejectment was instituted. A young lady was nearly expelled from a mattrass on the floor of the ladies' cabin by a youthful Jesuit, who insisted upon priority of claim. I indignantly protested, and offered my cabin to the lady, whereupon the young disciple of Loyola quietly suggested that it was unnecessary to disturb her, and promptly ensconced himself in my niche. After a speedy expulsion of the ecclesiastic, I was permitted to remain unmolested; while under and on the tables, arranged like the cargo of a slave-ship, lay packed the majority of the passengers. The more fortunate of ourselves baked in our berths till morning, many, I trust, with consciences less troubled than their stomachs.

The rest of the voyage was on a calm sea and without incident. A Sunday on board a foreign ship realises the sensation of solitude in a crowd. Seated on the taffrail for quiet reading, I found myself by the side of an American, the correspondent of a New York paper, and a freethinker. Sceptics, it is to be hoped, are not more common in America than in France, but they are certainly more obtrusive. A Frenchman seems scarcely to take the trouble to think at all: the other appears uneasily anxious to confirm himself in unbelief by discussion, and is careless of offending the convictions of those whom he meets, by propounding his theories in their baldest form. My companion held universal redemption, and ridiculed the great doctrines of Christianity,

asserting Scripture to be a mere Jewish history, exaggerated by national prejudices. I attempted to meet him by metaphysical and à priori arguments, when P., joining in, silenced if he did not convince him by Scriptural quotations. "Fools make a mock at sin."

The course of the steamer lay close by the island of Minorca, and we peered with our glasses into the magnificent harbour of Mahon, once an advanced post of England, and now eagerly coveted by our Gallic neighbours. Its acquisition will be one great step towards the realization of the French lake, lying as it does half way between Europe and Africa, and within 50 miles of the direct course of all vessels up the Mediterranean.

We were reminded that autumn was now setting in by the numerous flocks of migratory birds which passed us on their way southwards, chiefly familiar English summer visitants, whitethroats and warblers, and many short-toed larks and pipits.

Early next morning we dropped anchor in the port of Algiers, so familiar by description to every reader. The first glimpse vividly recals the tales of our childhood. That white triangular patch, cut as it were out of the mountain side, and fringed with the richest and darkest verdure, might be still the nest of corsairs and the hopeless prison of Christian captives. But on entering the harbour all such pictures of the imagination vanish before healthier realities. A stupendous breakwater and mole, the work of the French Government, now rapidly approaching completion, offers a safe refuge for the finest navy that ever floated on the Mediterranean; and in lieu of the ensign of the pirate craft, the bright tricolor of France and the flags of many a peaceful trader flutter from a triple row of masts. One old corsair, carefully repaired from time to time, till her

timbers are now probably not more original than those of the "Victory" at Portsmouth, alone remains in the inner harbour, supporting an imperial pennant; an historic remnant of that extinct trade which provoked English chastisement, and palliated French conquest. The deep trenches and massive earthwork batteries, which form the modern enceinte, do not catch the eye, while the crumbling Moorish walls still mark the limit of the inhabited portion of the town. The French extensions have been only on the water's edge, where handsomely built fauxbourgs have spread themselves like wings on each side. In fact, the ground-plan of Algiers is not unlike a bird spread out, the old city representing the body, and the long mole which runs out to the Admiralty, once an island, forming the neck and head.

After much wrangling and deafening vociferations of the Moorish or Koulougli boatmen, we were landed on the Pêcherie, our passport receipts having been handed to us as we descended the ship's side. We mounted the long steps leading to the grand square, flanked by the now neglected batteries, which once formed the defence of the city, and which shattered with terrific effect the fleet of Lord Exmouth; and reaching the summit of the steps, found ourselves in the small square of the Place Mahon, now merely the cab-stand of Algiers, but interesting as being exactly on the site of the ancient Christian slave-market. What strange untold romance of misery—hopeless misery—of crime, rapine, and lust, lies for ever buried beneath that spot! Adjoining this is the grand square, now rejoicing in the appellation of "Place du Gouvernement," but preserving, in the half-obliterated titles of "Place Royale," "Place Républicaine," a record of the political inspirations which Algiers has successively received from the centre of French civilization.

When we arrived, a fair was being held preparatory to the annual "course," and the square was filled with booths crowded with showy and tinselly Parisian manufactures. French, Spaniards, and Jews jostled each other in gay holiday attire; and Bedouins, shrouded in their white burnouses, flitted silent and majestic like ghosts amid the throng. The old palace of the Deys had just been demolished, and the opening afforded a splendid view of the upper or Moorish city, rising with its white and flat-roofed houses, tier above tier, over the plain, far as the eye could reach in the clear moonlight. In front, leaning over the parapet, we enjoyed a commanding view of the port and roadstead, with Cape Matifou at the further extremity of the bay. Almost in the centre of the square stands a colossal equestrian statue of the late Duc d'Orléans, from the design of Marochetti, erected in 1842 by the civilians and army of Algeria, now only an historic monument of a dynasty which has passed from power and from memory. The revolutionary government of 1848 sent orders to have this statue destroyed, but the population of Algiers, and even the military, rose en masse, and by force prevented the officials from carrying out their intentions. On the pedestal are two spirited bas-reliefs, one representing the forcing of the pass of the Col de Mouzaïa, the other the capture of the citadel of Anvers. On the opposite side of the steps of the Pêcherie, on the site of the forum of the Roman city of Icosium, stands the Grand Mosque Djemmâa Djedid. It has a handsome minaret at the west end, and a crescent-surmounted dome over the centre. The story is told that the architect was an Italian captive, to whom the Dey promised freedom if he should succeed in erecting the most handsome mosque in El Djédzar. During its

construction it was remarked to the Dey that the edifice was in the shape of a cross, upon which on the day of its completion he beheaded the unfortunate designer. Close to the entrance is a Mohammedan tribunal, where the kadi may be daily seen administering the justice of the Koran, and settling the disputes of the wrangling daughters of Moslem, who recount their grievances from veiled lips through a small lattice window.

Lower down the street is the Grand Mosque or Djemmâa Khebir, a very handsome edifice, with a row of light marble columns supporting the arcade of the street in front, but without the great dome which relieves the other mosque. The arches of the interior are partly Saracenic and partly semicircular. Europeans and even females are freely permitted to enter any of the mosques in Algiers on taking off their shoes at the entrance, where an attendant supplies them with slippers. The effect of the rows of light shafts and arches is fine, but the interior has a bare appearance, being without any other furniture than the lamps slung from the roof, a wooden pulpit near the centre, and the floor laid with matting and ragged Turkey carpets here and there. These two mosques are the cathedrals of two different sects of Mussulmans—the Maleki, to which belong most of the Turks and Moors of Algiers; and the Hanefi, which numbers amongst its adherents all the Algerian Arabs. They differ in their ritual, but not in their doctrines; and, unlike the other Mohammedan sects, do not anathematize each other. There are also small mosques belonging to the sect of Ali, and the "Khramsine" or fifth sect, who are looked upon as heretics, and are as bitterly hated as the Shafi and Wahabi of Arabia.

Let us return to the Grand Place, ascend the hill but

a few yards, and we find ourselves transported into narrow lanes, under vaulted archways so contracted that frequently two foot passengers can only with difficulty pass each other. In the days of Moslem rule it was the privilege of any Moor in ascending these streets to seize the first Jew he met and compel him to bear him on his shoulders to his destination.* These alleys are flanked with houses, whose iron-barred and grated doorways forbid the curious stranger, and show no windows to the street. Paris and Constantinople are here truly in grotesque juxta-position; the East and the West, Christianity and Mohammedanism, have met and submitted to dwell side by side, but as yet with no more amalgamation than oil and water. It is precisely this isolation of nations which gives its peculiar charm to Algiers. Passing down again from the upper town, with its zigzag lanes, into the arcaded Bab-Azoun or Bab-el-Oued, we see the proud and sturdy Moor, with his shaven temples, fez,† and red turban, loose trousers and rich slashed jacket, sitting moodily, pipe in hand, as he presides over his little tobacco or silk shop. Next comes the Jew, with the immutable features of his race; his dress equally distinctive—black turban,‡ large and loose trousers, fastened above the knee, of a most brilliant hue; jacket equally bright, but always a contrast in colour; and long stockings, which the Moor never wears. The arcades are filled with tall and brawny Arabs, wrapped in their burnouses and camel's hair head-gear, proud and stately in their gait, jostling with the roguish-looking Maltese in his long red cap, and the Andalusian or Valencian with his high-crowned hat, shawl,

* A somewhat clumsy version of the Persian ἀγγαρήϊον.—Herod. viii. 98.

† In Algeria called "chachia."

‡ Called the "zemla."

and matted sandals, and all enlivened by the restless and ever-moving groups of soldiers in every uniform known to France—Zouave, Chasseur d'Afrique, Tirailleur Indigène, dashing hussar, line, and artillery; all are crowded together here. Enter one of those innumerable omnibuses which ply for ever along the streets and carry you a couple of miles for three or four sous, you will find yourself between a Jewish and Moorish lady. The beauty of the latter cannot be described, as she carefully conceals with her haïk all except her bright black eyes and the hennaed tips of her fingers. The beauty of the former is not to be told, for her red and gold cap and her embroidered but shapeless robe display more than enough to disgust. Opposite sit a turbaned Moor and Zouave; and in the further corners a Bedouin and a Spaniard are endeavouring to carry on a conversation in a language composed of a jargon of French, Arabic, and Spanish, and familiarly known in Africa as the "lingua saber."

The day after our arrival Algiers turned out to enjoy a grand military spectacle. It was a day of marching and countermarching, of drumming and trumpeting, to celebrate the landing of the governor-general, le Maréchal Randon, from Kabylie, whence he had returned in a frigate. Poor Kabyles! in vain have they struggled to maintain the independence they had preserved intact since the days of Carthage and Rome. They seem destined to the same fate as the heroes of the Caucasus, though with less sympathy and greater civil virtues. But for this time the French general has turned his back on the few remaining mountain fortresses, leaving them to his lieutenants, while all that was fertile, weak, or helpless has been devastated to provide decorations and promotions for the

Armée de l'Afrique. As a pendant to his triumphant entry, the ambulance waggons laden with sick and wounded traversed the streets from the Port Militaire to the hospitals in dreary procession for four hours after nightfall.

The next evening we happened to take a moonlight walk outside the gate of Bab-el-Oued. Here is the most truly Oriental scenery to be found close to Algiers. On the left are dark wooded heights studded with flat-roofed dwellings, white-domed tombs shaded by ancient palm-trees, and small fields enclosed by hedges of aloe; while on the right the tranquil sea slumbers in the moonlight. On this road lies the cemetery of St. Eugène, the principal Christian burial-place. Here we turned. A covered cart drove slowly up to meet us. It was accompanied by three hospital orderlies in fatigue dress, and so filled with coffinless bodies that the cover would not close; limbs protruded; the very stench betrayed its contents. The cemetery gates were opened; we were sharply refused admission, but the silent dead drove in, and the portals were quickly locked upon them. It is reported that the mortality is fearful among the young regiments just returned from Kabylie—2000 fever-stricken and 400 wounded have entered the hospitals. A few are buried every morning with military pomp, but, to prevent panic, the dead-room is cleared every evening, and its contents then flung into the pit, bereft of the honours of a Christian's or a soldier's burial. But what matters it? The 'Akhbar'* tells no tales inconvenient to government; the peasant friends of Jean Marie hear in a few months that he has died a soldier's death, covered with glory, and the conscription soon fills his place.

* The Algerian government journal.

A touching anecdote was related to me to-day respecting a minor incident of the war. A Zouave sergeant had been shot at an outpost near Tiziouzoun. The perpetrator of the deed could not be discovered. An old man, however, was seized an hour or two afterwards near the spot, brought before the general and accused of the murder. He was in Kabyle costume, but denied having ever been armed, and stated that, though a Kabyle, he was of a tribe in the province of Oran in alliance with the French, and was actually on his way to the camp to see his son, a soldier in their service, in the regiment of Tirailleurs Indigènes. The incredulous tribunal replied that this was an easy story to tell, that he could without difficulty have concealed or thrown away his arms in the ravine, and cross-questioned him as to where he had spent the previous days. A stranger to the locality, his replies were not satisfactory, whereupon he was ordered to be remanded. But the Zouaves were discontented, and clamoured for vengeance for a comrade's blood. On this the general gave way and assented to his execution at once. The old man was dragged forth and shot "sans cérémonie." Next day the truth of his story was ascertained. His son, like a true Moslem, made no outward sign of indignation, but was carefully watched for a week lest he should desert. Still he betrayed no such design. But nine days afterwards he disappeared, taking with him to the Kabyles nine comrades and twenty muskets. Happily he has not yet been found to share his father's fate.

Another story to show the prompt severity of French military discipline in war time. A party of native cavalry, Spahis, on a night march had received orders on no account to smoke, lest their pipes should betray them to the enemy. The officer in the rear smelt

tobacco, and riding forward demanded of a trooper if he had not been smoking. The man, who had already extinguished his pipe, made no reply, and the officer, drawing his sword, cut him down, while the squadron passed on, leaving their headless comrade in the path.

General Yusuf, who commands the greater portion of these native troops, is considered the most relentless general in the service, whenever the slightest breach of military discipline is brought before him, yet no man can more thoroughly enjoy the confidence of his soldiers, whether French or native. Tall, of commanding aspect, and strongly-marked Italian features, his history is perhaps the strangest romance of modern times. His origin is unknown even to himself, but it is said that he has a faint recollection of seeing his mother murdered before his eyes when he and his sister were captured by corsairs. Taken to Tunis and educated in the household of the Bey, he might have risen to some important post by his own ability and the interest of his sister, when, for a fault never to be pardoned in an Oriental palace, he had to fly for his life and escaped to join the independent Arabs. Still it is said that, conscious of his Christian origin, and smarting under a sense of the cruelty to which he had been exposed, he was not sorry when the fortune of war enabled him to take refuge with the invaders. He joined their service as an interpreter, and, from his knowledge of the wells and paths of the Sahara, was enabled to afford invaluable services to his new masters in their southern campaigns. His military genius soon qualified him to be transferred to the rank of a combatant officer, and after his heroic valour at the capture of Bona he rapidly rose to be general of division. His marriage with a lady of fortune

has enabled him to cultivate a taste for horticulture and natural history, and his gardens and menagerie at Blidah are ever open to strangers, to whom he is delighted to point out every object of interest; and the ruthless hero of many a Zouave camp-fire tale can scarce be recognised in the gentle savant, cultivating his herons, cranes, and water-fowl.

General Yusuf is not the only European who has served under the Moslem banner. A Frenchman, now high in the diplomatic service of his country, taken prisoner when a lad, and finding escape or exchange hopeless, conformed to the religion of his captors, and made the pilgrimage to Mecca. Though he afterwards found means to escape, and has since done good service to France, the Moslems continue to honour him by the title of Hadj (pilgrim), and firmly believe that he is still one of themselves in heart, and only a Frenchman by necessity. They appear to hold it impossible that one who has visited the shrine of the Prophet can ever be really a renegade.

The opportunities afforded to a Christian, in Algiers, for examining the interior life of the Mussulman population, are very few; yet there are some of their ceremonies to which admission may be obtained. Among these are the "fantasia," or entertainments, of a Marocain sect, which are frequently given by the richer natives. Being invited one evening to accompany a friend, after climbing many precipitous back streets we entered the low doorway of a Moorish dwelling, and found ourselves in a small courtyard open to the sky, with light pillared arches in antique arabesque supporting a cloister round it, and a verandah above, over whose balustrades a row of veiled Moorish women were leaning and gazing down on the scene below. The floor of the centre was paved

with bright tessellated tiles. In the midst squatted the dervishes, or Beni Yssou. Round three sides the musicians sat on the ground, beating large tambourines, and swinging their heads as they accompanied their voices in a low measured chant, which never varied more than three semi-tones. Nothing could sound to our ears more. monotonous than this unvaried wailing cadence, no music less capable of inspiring frenzy. The fourth side of the square was occupied by a young man sitting cross-legged before a low table, on which lay a bundle of tapers and a long lighted candle. Near him was a chafing-dish, over which he frequently baked the tambourines. One of the musicians, in lieu of a tambourine, held a huge earthen jar, with a parchment cover stretched over its mouth, which, by incessant drumming, produced a bass groan deeper even than the other instruments. Shrouded spectators occupied the background; and a few Moors, and one or two Frenchmen, the front and sides, without the pillars. We were accommodated with a form and courteously supplied with coffee and pipes from time to time. Meanwhile the courtyard filled and became a vapour-bath. The dervishes having now worked up the steam, a huge negro with grizzled-grey moustache rose, plunged forward with a howl, and swayed his body to and fro. He was supported by the attendants, stripped of his turban and outer garments, and accommodated with a loose white burnous; he then danced an extempore saraband in front of the lights. Meanwhile he had been anticipated in his excitement by a little boy in the rear, whom we had noticed on the stairs behind, for the last twenty minutes, gradually working himself into an ecstacy, rolling his head and swaying himself on his seat, apparently unconscious and unobserved. The black had

now become outrageous; his eyeballs glowed and rolled as he grunted and growled like a wild beast. The musicians plied the sheepskins with redoubled energy, and the din became deafening. The negro craved for aliment. They brought him a smith's shovel at a red heat. He seized it, spit on his fingers, rubbed them across its heated edge, found it not sufficiently tender, blew on it and struck it many times with the palm of his hand. He licked it with his tongue, found it not yet to his taste, and handed it back to the attendants with evident disgust; squatted down again, glared carnivorously, and was gratified by an entremêt of a live scorpion. This he ate with evident relish, commencing carefully with the tail; but his voracity was still unabated. Next a naked sword was handed to him, which he tried to swallow, but failed, the weapon being slighly curved and about a yard long. He recommenced the saraband, brandishing the naked sword after a fashion very promiscuous, and not altogether satisfactory to the spectators, as he cut the candle to pieces, and made the musicians dive to avoid him. He then attempted to bore his cheek with the point, then to pierce himself in the abdomen; setting the hilt at times against a pillar, then against the ground. A friendly fellow-fanatic assisted him by jumping on his shoulders, but all to no purpose. He was evidently for the nonce one of the pachydermata; his hide would rival the seven-fold shield of Ajax. Now several maniacs simultaneously howl, stagger forth to the centre, and repeat the same extravagances; not omitting the dainty taste of scorpions. Three of them at length kneel together before the presiding Marabout, or chief of the dervishes, who benevolently feeds them with the leaf of the prickly pear; which they bite with avidity, and masticate in large mouthfuls, spines and

all. Others repeat the shovel exploit; and one sturdy little fellow, a Marocain, naked to the waist, balances himself on his stomach on the edge of a drawn sword, held up, point and hilt, by two men. Then he stands on it, supporting a tall man on his shoulders. Altogether the din of the musicians, the pleased "Sah, sah," of the spectators, the howls of the maniacs with their waving figures and dishevelled hair (for the dervishes do not shave), the heat and stench of the apartment, the wild confusion of the spectacle, might make a visitor fancy he was looking on some mad unearthly revel, where fanaticism had turned fiendish, and demoniac worship domineered it over men. We waited till long after midnight; still the revel continued, and wearied and disgusted we gave the accustomed dole to the Marabout, and retired.

I have since witnessed these exhibitions, or fantasias, in various parts of Africa. In their main features they are all alike: the same din of tambourines and the same monotonous chant; exciting the performers to raptures of ecstatic frenzy. Generally, but not always, the actors are professional dervishes; frequently, as in the case of the boy alluded to above, indifferent spectators are wrought into a similar state of excitement, and sometimes they, too, will roll on to the fire, and masticate the prickly pear. However it may be explained, it seems in its nature entirely distinct from the professional jugglery of Europe. There can be no sleight of hand or deception in the feats performed. The body seems for the time insensible to the ordinary feelings of pain, the muscles are worked into a state of unnatural rigidity. I have felt the muscles of the stomach, and even of the breast, harder than the contracted arm of the sturdiest oarsman in training, and the skin as tough

as the driest leather. The spine of the prickly pear is one of the sharpest prickles in nature, and yet the performers will devour leaf after leaf without the slightest symptom of pain, and without a trace of blood in their mouths. They do not even take them into their hands so as to avoid the points of the prickles, but allow the bystanders to put them into their mouths. When the excitement has passed away, they suffer from extreme bodily prostration, and are said to be incapable of exertion for two or three days. The only apparent stimulating cause is the monotonous music, and yet these people will listen for hours, without the slightest emotion, to the inspiriting martial music of a French band, and pronounce it far inferior to their native noises. Can it be that the Arabs have learned and practised an anæsthetic or mesmeric power for ages before it was discovered in Europe? And all this, like the spirit-rappings of America, is under the guise of a religious or spiritual celebration! How strangely similar are psychological phenomena in all ages and countries! It is a curious circumstance that these devotees call themselves Beni Yssou, "Sons of Jesus," and quote a text of the New Testament in proof of their divine origin:—"Behold I give unto you power to tread on serpents and scorpions, and over all the power of the enemy, and nothing shall by any means hurt you."—Luke x. 19.

We witnessed one morning a yet more degrading ceremonial. In all countries there will be found among the most ignorant some debasing superstition, and it is to be feared that the traces of Fetish worship in Algiers are not worse than may be discovered elsewhere, under the shadow of a purer and holier faith. A morning stroll led us to a secluded nook by the shore, where under the rocks three fresh fountains of sweet water bubble forth within

a few feet of the sea at St. Eugène. Two negroes with butcher's knives, which, as we arrived, they were in the act of whetting, sat on the rocks ready to officiate as priests. A dark-skinned damsel with deeply tattooed cheeks, squatted as priestess near the water's edge. Just under the cliff, some yards behind her, was the sacred fountain, by which sat a Moorish woman and a negress, the latter arrayed in a gorgeously coloured robe, and the two looking much like day and night. At length some devotees arrived. The Moorish girl placed before her a small crock of live charcoal, took a snuff-box full of incense, sprinkled a little, first over her left shoulder, then over her right, then on the ground before her, and cast the remainder into the fire. One of the negro priests took three live fowls, one in his right hand and two in his left, by the legs, and smoked them over the incense. He crossed his arms left over right, then right over left; he laid the fowl in his right hand on the ground, trod on its legs and wings, and so holding it down pointed with his knife, east, west, and north, and marked a cross on the ground: he then cut its throat, and let it flutter. Now was the moment for augury. All the party gazed at it intently, and uttered moaning cries, as it struggled forward in its death throes. It reached the sea. Auspicious omen, duly hailed by all! The same ceremony was repeated with the other two fowls. The priest then touched with his bloody finger the forehead of the Moorish girl who had brought the offering, then her shoulders, knees, ankles, elbows, and knuckles. There was a Spanish market-girl standing by, who bargained for the victims as they were offered, and, as soon as they were dead, set to work to pluck the sacrifices, which would doubtless appear on the table of the Hôtel d'Orient in the evening. A little further on

among the rocks a priestess was performing incantations by another well, repeating chants, and making various manipulations over a pot of incense; sometimes in her invocations pointing her fingers to the ground, and then raising them towards the sky. At length she exclaimed that the demon of sickness was lodged in the chafing-dish, over which she immediately smoked the legs, arms, and head of a sickly-looking Moorish woman, to whom she then handed a bottle of holy water from the well, which she had duly blessed. I should have mentioned that during the incantation the priests took especial care of two coloured wax tapers which were burning before each, and whose accidental extinction would have been considered the worst of omens; and that in every case both the offerers and the sacrificers were washed beforehand with water from one or other of the holy wells.

This superstition is much resorted to throughout North Africa, both by Moors and *Jews*, for the removal of chronic diseases. Near Tunis and at Constantine I have observed the same and even more elaborate ceremonies, a kid or a goat being substituted for the chickens. Strange as it seems that either Moslem or Jew should be seduced to such evident fetish worship, one can scarcely believe it to be indigenous; and we may accordingly give credence to the tradition that the custom arose during the time of a pestilence, many centuries since, in Algeria, when a negro from Timbuctoo engaged to remove the plague, and taught sacrifices to the "Earthmen," or demons who roam the earth. These are believed to be harmless when once they have obtained a human residence. Accordingly the votary receives the demon and is cured. The priest prescribes the colour of the fowl to be offered in each case, and to this particular much importance is attached. I ought to add

that the upper classes of the Mohammedans consider this sacrifice as directly contrary to the Koran, and that the stricter Jews renounce it as an idolatrous abomination; yet the lower classes of both combine harmoniously in this devil-worship.

Whatever may have been the progress of so-called civilisation and enlightenment under the French rule in Algeria, the Papacy has not advanced a single step towards the recovery of the sway of St. Augustine. Nay, the antagonism of race would seem to have embittered the hatred of the Moslem against Christianity. Nor can a closer acquaintance with the sensuous worship of Rome be calculated to conciliate the goodwill of the iconoclasts of Islam. Nowhere has all semblance of missionary exertion been more openly abandoned. And yet the mission to Algeria figures largely in the Report of the Propaganda. Not a single missionary, however, is known to the world, and the solitary convert in the city of Algiers is a Moorish lady who has married a French colonel. The efforts of the Church, which owns large property in the colony, are confined to the immigrants, whether Roman Catholics or Protestants. Nor can it be said that the Civil Government has repressed such exertions, for the most undisguised patronage is afforded to the Bishop and his agents in every possible way. It would rather seem that the Jesuits have instinctively from the first felt the hopelessness of such attempts. The missionary work has, however, been carried on among the Jews with some success by a Scotch society, whose representative, the Rev. B. Weiss, a man of brilliant attainments, of deep learning, and most devoted life, has consecrated no ordinary energies to this field for some years past; and while making himself master of the habits and ideas of the "indigènes," has been

enabled to rouse at least a spirit of inquiry both among Jews and Mussulmans. Those who may have attended Mr. Weiss's services, or rather domestic meetings, held in several languages, must be satisfied that his is no unsuccessful or barren mission.

CHAPTER II.

Preparations for travel — Dragoman — Tents — Licence for arms — Letters — Advice of the governor — A mulish baggage-horse — Disastrous start — Fort l'Empereur — Orphélinat — Dely Ibrahim — Protestant institute — Douera — Interesting prisoners — Bouffarick — Successful colonization — Beni Mered — A valiant guard — Mausoleum of the kings of Mauritania — Lake Halloula — Blidah — Gorge of the Chiffa — Scenery — Monkeys — Arab Gourbis — Making game of a naturalist — Meeting Bedouins — Dog lost — Taking an inn by storm — Cheap lodgings — Mines of Mouzaïa — Medeah — Native review — A Sheik's farewell of his son — Eagerness for Parisian education.

BUT we must not spend more time upon Algiers; our goal was the far desert, and October was approaching. Neither few nor simple are the difficulties that beset the traveller seeking an outfit in French Africa. Whatever is required by an officer for a Kabyle campaign, and is not supplied by the "Intendance Militaire," is to be had at once, but nothing more. Long and anxious were the discussions about those most important and indispensable of companions, our horses. The decision on them I prudently left to P., a better judge of horse-flesh than myself. The next in importance, and the most difficult to secure, was a trusty dragoman. No such skilful and ready-witted desert couriers, if I may so term them, are to be found in Algiers as lounge in the Strada Reale of Malta, or hang about the doorway of Shepherd's Hotel in Cairo. Travelling is not yet here reduced to a system, nor is it, with its few attractions, likely to be so for years to come. At length, through the kind assistance of Mr. Elmore, H.B.M. Vice-Consul, to whom I can never sufficiently express my

obligations for his valuable exertions, suggestions, and information, a dragoman was secured, the only one of his acquaintance, Mr. Elmore assured us, on whom the slightest dependence could be placed. Alas! as we afterwards found to our cost, Punic faith was the best in the market. However, we had some hope of being able to start, when one afternoon Omar ben Yaya made his bow and presented his credentials, a tall well-knit Arab, with dark intelligent and kindly eye, nose long and straight, and oval face. His fez, laced jacket and waistcoat, were of brilliant crimson, his loose trousers of dirty olive, and his complexion to match. Without much parley we were glad to engage him on his own terms of 25 dollars per month. But alarming was the list of necessaries which he assured us were absolutely requisite for our campaign, and the three camels' burden of our dreams became the seven or eight of waking reality.

Our tents were ordered of the most approved shape and make, and experimentally pitched in the Bab-el-Oued, while we, simple freshmen, without the experience of Mr. Galton, did not detect that no windcords had been supplied. The canteens were soon provided, two pair of stout second-hand French officers' equipment, besides a very commodious pair of bullock trunks, with honest English straps I had brought from home. Our beds were, I flatter myself, articles the most perfect of their kind. Long sacks of sheepskin, "with the woolly side in," the lower portion extending a yard beyond the upper, and forming at its upper end a bag into which all the wardrobe of the day could be stowed, composed a most convenient pillow, and one of which no pilferer could rob us; while a flap with strings attached turned up over the shoulders to the neck, and secured the body from the attacks of any insects, save the most inquisitive.

I determined to be content to spread my humble couch on the ground, protected by a mackintosh sheet I had brought from England. P., more ambitious, had his stretched on a canvas frame between poles, extended head and foot over his canteen boxes. The tent, 12 feet by 8, was to shelter P. and myself; a smaller and lower one sufficed for the servants. A portable table and two camp stools completed our furniture, and one pair of canteens were crammed with culinary apparatus, boxes of chocolate, tins of butter, a case of tea, bags of coffee, tobacco, "biscuit viande" (a very valuable ingredient in soup maigre), and two loaves of sugar. For our further needs, ammunition and barter with the nomads must provide. I had taken care to be well supplied with *good* English cutlery and some bundles of the best silk handkerchiefs, which we found most valuable stores afterwards, in acknowledging hospitality and kindness among the desert tribes. These, and my preparations for natural history collections, together with a few instruments, sextant, hygrometer, self-registering thermometer, hair compass, &c., fully charged another pair of canteens. Fortunately, the cases of instruments had inspired the Custom-house officials with such respect for the character of a "savant," that all had passed unchallenged on entering the port.

Next, as we should be for some time in French territory, came the momentous business of putting all our papers en règle. First of these was the "permis de chasse," or certificate to carry a gun, the process of procuring which may certainly teach grumblers that the "Circumlocution Office" is not a peculiar institution of the British Isles. In the first place, we had to present ourselves at the "Bureau des Etrangers," and procure our passports with the due visas. 2nd. To go to the

"Bureau de Police Centrale," whose officials, on our making the formal declaration usual in such cases, stated that they knew nothing against us, and sent us, with a duly stamped certificate of this most gratifying fact, to (3rd) the Mairie. Here we obtained a recommendation to the Receveur Municipal, a functionary residing in another part of the city, our 4th visit, who kindly accepted the introduction, and on payment of 20 francs gave me a receipt for the same, and sent me on, 5thly, to the Receveur des Domaines, which gentleman-official took 30 francs, gave me a receipt and a blank form of "signalement," or personal description, and sent me, 6thly, to the Stamp Office to pay 1fr. 75c. for stamps on these papers. 7thly, I revisited the "Mairie," where P. and I were put down on paper, our measure taken, and our features scandalised—I in particular obtaining from the official artist the information of having a "nez ordinaire," "front" and "menton" ditto, "barbe," however, blonde. Our 8th visit was to the "Prefecture," where the precious document was deposited; and 9thly and lastly, we called there the following morning and received our permis duly signed. As it proved, we might have avoided all this journeying amidst dark streets and mysterious galleries, for we never used our arms in the "territoire civile," and in the "territoire militaire" arms are as ordinarily and as necessarily worn as trousers, and the authorities demand no permis, since no one without a special permission can travel there at all.

Those far more valuable documents, our letters to the various generals and commandants of the interior, without which we could not have moved a step, cost far less trouble. H.E. le Maréchal Randon, the Governor, who had himself kindly suggested to me this tour during my former visit to the country, supplied us promptly, with-

out any intervention of that very superfluous though highly-paid official, H.B.M. Consul-General, with such recommendations as proved no mere form of words, but facilitated our wanderings over plains and through oases hitherto untrod by European foot. The Governor, with his own pen, charged several of his subordinates to give us letters to any Arab sheiks in amity with whom they had personal acquaintance, to supply us with camels, escorts, and forage, and to prevent our needlessly exposing ourselves to hostile tribes. I found myself most undeservedly described as a "naturaliste très distingué," and P. as an "archéologiste profonde," a title perhaps better merited.

On waiting on His Excellency to express my thanks, I met with a most kind reception, and the gallant old soldier, as he shook my hand, after cautioning me not to expose myself to dangers from which no French authorities could protect us in the far-distant desert, added,—Recollect, the best of defensive weapons is "le sang froid Anglais," and, above all, *keep your temper ;* two pieces of sage advice which many, besides travellers in North Africa, might do well to ponder.

At length, after the many delays, doubts, and uncertainties which harass the intending traveller, as to whether horses will prove sound, whether dragomans will prove trusty, whether promised letters will arrive, behold us at the door of the Hôtel des Ambassadeurs, equipped gallantly as John Gilpin, little anticipating a fate as ignoble. My trusty dog Bob is in a paroxysm of anticipation at the sight of fire-arms slung on our shoulders, ourselves in half Arab costume, while Omar has undergone a transformation, has doffed his holiday red and gold, and appears in dirty brown blouse and Turkish trousers, loose alike in colour and cleanliness.

His legs are encased in extemporized mocassins of untanned leather, stitched in quaint devices by an Arabian artist; and altogether he looks much like a Red Indian, half civilized from the knee upwards. Cans, pots, sheepskins, leathern bottles, coffee, beds, axes, tent-pegs, eagle-traps, and traps of all kinds, are being crammed into sacks and panniers, and canteens are forced to lock on constipated interiors. Scarcely has the last dispute been settled with the roguish landlord, when, lo! our best and strongest baggage-horse steadily and obstinately refuses to move, and then devises and executes the plan of lying down and rolling in the street, over panniers and their contents. Smash go lantern, "batterie de cuisine," and coffee-case and stores; and the showers of gold we have been dispensing in all directions for some days are now pouring in torrents of fruit in the gutter.

After a fourth repetition of this performance in the "Grand Place," a Chasseur d'Afrique, who had laughed at our want of skill and volunteered to mount the refractory brute, was summarily ejected, and in the midst of our misery two hussar officers of my acquaintance came up and condoled with us on the fractures, with an ill-disguised grin in the corner. At length my own little favourite Arab grey, whom I had named "Gazelle," from his perfect symmetry, was condemned to bear the burden, and I mounted the incorrigible "bête noir," armed with the sharpest of spurs.

We ascended the winding Rue Rovigo, and, quitting Algiers by the old Moorish gate at the top of the city, close by the Kasbah, the ancient fortified palace of the Deys, soon reached Fort Empereur, so named from its builder, Charles V., and long considered the military key of the position. The breaching of this fort led the Algerians to surrender at once to the French in 1830.

It is now dismantled, being commanded by the heights where Marshal Bourmont planted his batteries, and in its stead stupendous earthworks, revêted with masonry, crown all the outer heights. Here we turned to observe the magnificent panorama of the city and the harbour below, with the bay stretching far beyond, the slopes of Mustapha on the right studded with villas, the Sahel range terminating beyond the massive tower of the seminary of Kouba, the conspicuous Maison Carrée, now a military prison, planted just where the plain of the Metidjeh opens to the sea, the range of the lesser Atlas in the distance beyond, and the peaks of the Djudjura, the last stronghold of the Kabyles, behind them, capped with snow. We were on the spot where on 27th October, 1586, the Emperor Charles V. made his last celebrated but unsuccessful attempt on "El Djedzar," himself in person commanding. Hence the road passes through many scattered villages, and by pretty country seats, campagnes, and gardens, where in the time of the Deys the European consuls had their summer residences, guarded by a small body of Janissaries allotted by the government to each foreign representative. Hither, to the villa of the Spanish consul-general, the whole diplomatic body, protected by their guard, retired during the siege of the city by the French.

On the left stands a handsome monastic-looking edifice, with its central dome surmounted by a cross. It is the penitentiary, supported by the government funds, and under the direction of the Sisters of Mercy. A little further on, on the other side, are the extensive grounds and buildings of the Roman Catholic Orphélinat, likewise supported in a great measure by the state, under the management of the Jesuit order, and named Ben Aknoun. In this refuge destitute children and

orphans are received and instructed in agriculture and horticulture. The cultivation of cochineal has been here introduced with some success, and the well-ordered farm and grounds amply repay a visit.

Three miles further on lies the village of Dely Ibrahim, interesting as having been the first French attempt at agricultural colonization in Algeria, founded by the Duke de Rovigo, and settled principally by Protestants from Alsace. The first inhabitants were repeatedly decimated by fever; and when the Arab war of 1840 broke out, this place was the theatre of frightful scenes of carnage. It is now healthy, but scarcely a single survivor of the first colonists remains. The old barracks on the rising ground to the right have been given to the Protestant Orphélinat, supported by private subscriptions and a proportional grant from the public funds. A small quantity of land is attached to the Institution, where the boys are instructed in agriculture. A large Moorish house, half a mile distant, has since been added for the reception of girls, who are instructed in the useful domestic arts, and perform the indoor work of both households. Dely Ibrahim presents an interesting specimen of a well-conducted industrial school; it accommodates 120 children, under the charge of a resident director, governess, matron, schoolmaster, and agricultural labourer. These form the whole staff, and there is every reason to expect that, as soon as the land conceded by the government has been brought into cultivation, the institution will become in some measure self-supporting. Meanwhile it well deserves the notice and assistance of all Protestant visitors to Algiers.*

* The writer, who is its correspondent in England, will gratefully receive donations for its benefit.

From Dely Ibrahim the road winds down the southern slopes of the Sahel, for the most part still an uncultivated wilderness, the district having been conceded during the Orleans dynasty to the families of civil and military employés, or others having interest at court, and who now, being resident in France, and without capital to reclaim these wastes, let them for a small sum for pasturage. At the foot of the hill we reached Douera, originally a military outpost, and still walled, rather from past than present necessity. It contains large prisons, which at the time of our visit were occupied by political offenders, chiefly Red Republicans, condemned for their share in the outbreak of June 1848. Several thousands of these "Déportés" have been sent to Algeria, but the greater portion are permitted to settle in convict villages, on their parole, under the surveillance of the police. Here are detained only the most criminal, and those who have refused or broken their parole. A manufactory of rope, from the fibre of the dwarf palmetto (*Chamærops nana*), is carried on in the prison, which we readily obtained permission to visit. A physiognomist would be interested by the study of the expressive and often hideously repulsive countenances of these would-be regenerators of society.

The monotonous route from Douera to Blidah recalls to the traveller a ride across the Campagna of Rome, the white towns which stud the foot of the Atlas in the distance bearing a striking resemblance to the old Latin cities fringing the Italian plain. It is not, however, so desolate: solitary farmhouses and villages occur from time to time. We spent a day at Bouffarick, much vaunted by the French as a specimen of successful colonization. It was known before their arrival as a mere Arab cattle-market in a morass, but military

exigencies compelled the conquerors to form here a permanent camp. For twelve years the annual mortality from fever was over 20 per cent. of the population, but the government persevered, using political déportés and condemned regiments to reclaim the soil, and Bouffarick is now another proof that persevering cultivation will, in time, overcome the most pestilential malaria. Fever has disappeared, and, although in the midst of the plain of the Metidjeh, there is not a more salubrious spot in the whole colony.

From Bouffarick the route continues in a long unvarying line to Blidah, its monotony only broken by the obelisk of Beni Mered, seen in the centre of the road at a distance of several miles. Here on April 18, 1842, twenty-two soldiers commanded by a sergeant resisted the onslaught of 300 Arabs, and after a desperate resistance were all left for dead. A surgeon who accidentally was with the party recovered sufficiently from his wounds to give a relation of the gallant affair, which has been commemorated by this lofty obelisk surmounting a fountain, and bearing an account of the skirmish in French and Arabic, with the names of the twenty-two heroes.

Soon we obtained a view of the celebrated Mauritanian monument behind us, called by the Arabs "Koubber Roumeah," *i.e.* the tomb of the Christian woman. Just beyond it rose, partially concealed by fleecy clouds, the rugged Mount Chenoua, behind the shelter of which is the port of Cherchell, the Julia Cæsaræa of the Latins, and the Roman capital of Mauritania Cæsariensis. Before its conquest it had been, under the name of Jol, the royal city of the Mauritanians, whose mausoleum was the Koubber Roumeah just mentioned. There are the remains of an aqueduct, which can be seen from the

KOUBBER ROUMEAH—MAUSOLEUM OF THE MAURITANIAN KINGS.

To face page 30.

sea, only inferior to those near Carthage, and the whole coast for miles is strewed with ruins of Roman monuments. Often as I have visited them, I am not about to inflict on my readers the antiquarian details which if they desire they can find in the gorgeous work of M. Berbrugger; but far beyond the other remains in interest, as it towers above them in grandeur, is this mausoleum of a royal race, whose very history, name, and language have utterly perished. Pomponius Mela, vi. § 1, alludes to it 1800 years ago, and even then its origin seems to have been lost in antiquity; yet to this day it stands with scarcely any perceptible injury from the ravages of time. Out of sight of Cherchell, but overlooking the ancient port of Tipasa on the crest of the ridge which separates the Metidjeh and the Lake Halloula from the sea, and a conspicuous landmark both from the Mediterranean and the plain, in its utter solitude and desolation it has a grandeur beyond that of the Pyramids of Egypt. It is more impressive, for there is nothing near it with which to compare it. It is like them composed of huge squared stones, clamped together with iron, but is of the shape of a truncated cone, circular, with the apex flattened. The terraces of stone are about 3 feet 10 inches each in height, forming an easy stair to the summit. The diameter at the base is about 95 feet, and the height 100 feet. During one of my visits to it in the summer of 1856, when the photograph for the accompanying plate was taken, the Zouaves were employed in endeavouring to discover the tombs in the interior. They commenced operations on the east side; but after breaking through several tiers of stones and meeting with nothing but solid masonry, the attempt was given up for the time. The neighbouring kabyles, who, after their fashion, attribute all ruins to

the Christian empire, believe it to be the tomb of a Christian queen, probably from a confused tradition of Queen Cahina, the heroine of the Berber race.*

For the ornithologist this is the most attractive locality in Algeria. He can pitch his tent in safety and without fear of fever under the mausoleum, and then descend to the Lake Halloula and its neighbourhood, inhabited, especially in spring, by thousands of herons and ducks of various kinds, while the thickets and reeds that surround it swarm with many of the rarest of European warblers, who here find an undisturbed nesting-place. I have myself found here the nests of upwards of thirty species in a single day.

But to return to Blidah, which, now completely French in plan, buildings, and appearance, is only interesting from its being the head-quarters of General Yusuf and his Turcos, or native troops, known in the Crimea as the "blue Zouaves." Earthquakes and sieges have utterly destroyed all that was ancient or picturesque, but the orange-groves which embower it have escaped spoliation, and its shady walks render it a favourite summer residence of the Algerines.

Here we were glad to remain a day or two to supply the inevitable defects and omissions which the first few days' travel is sure to bring to light even in the best arranged expedition, yet, after the halt, were not sorry to find ourselves once more in the saddle, with no intention of resting again till we should have crossed the Atlas. The road follows the old Roman way to Cherchell, and its pavement is still perfect in places. The little ravine of Wed el Kebir was soon crossed, and then, passing by the new bridge over the Chiffa, we left the long straight

* Gibbon, chap. li.

road to Milianah, and turning abruptly to the south followed up the course of the impetuous torrent. The antiquarian would be rewarded by continuing his ride for two miles further to the town of Mouzaïa, where several statues have been found, and also a monumental inscription to a martyred Christian bishop.

The pass of the Chiffa is a triumph of military engineering skill, and was only completed in 1855. Before its construction there was no communication between Algiers and Medeah, the old Beylick of Tittery, excepting by the circuitous route of Milianah. The new road, in most parts a shelf cut out of the gorge, winds to accommodate itself to the sinuosities of the river which flows some hundreds of feet below. The scenery is Pyrenean, but scarcely on so large a scale. The sides of the pass are clothed with chesnut, ilex, and myrtle, the chain breaking into various headlands, now barring further progress, now enclosing the traveller between beetling cliffs. Evergreen shrubs in endless variety overhang the path—arbutus, yellow jasmine, several species of mimosa, and, conspicuous amidst all, the caper, with its singular-looking blossoms, predominates. Clinging to the sides of every fissure through which the mountain streamlets trickle are clusters of delicate ferns, eagerly stretching their tender foliage to catch the spray. The maidenhair frequently holds on to the naked cliffs with scarcely a vestige of earth in which to hide its roots. Many interesting birds here abound,—the rock swallow (*Cotyle rupestris*) skims incessantly by the sides of the precipices; falcons, buzzards, kites, and ravens are ever soaring overhead; while the restless blue thrush dips behind a stone as the traveller approaches.

But the most attractive of all the native inhabitants are the troops of monkeys which we saw disporting

themselves among the wood on the opposite side of the gorge. These creatures, which are of the same species as those of the rock of Gibraltar, descend in the morning and evening to drink at the Chiffa, and at the approach of wheels they may be seen scrambling promiscuously up the mountain side, mothers carrying their young, some on their back, others in their arms, and frequently turning, rushing up a tree, and, after a hasty glance at the passing traveller, chattering and grinning as monkeys know how. Now and then a fellow older and bolder than the rest will remain ensconced among the branches of a chesnut-tree, and take a very close survey of the intruders.

On the right may be seen, perched among almost inaccessible ridges, the gourbis,* or straw-wattled hovels, of a tribe or clan of mountain Arabs. These stationary tribes are far more squalid and filthy than the less sophisticated nomads, and have adopted some of the customs of the Kabyles without their industry or virtues. Their huts present the most wretched and miserable appearance, and are inconceivably filthy within. The cattle, goats, and dogs are usually admitted to the same poor shelter with their owners; and while they promote warmth during the chilly nights, do not aid in diminishing the insect population. Oh, the misery of a night in a gourbi! dogs and poultry gambolling over your prostrate body till morning, the unclean tail of a cow occasionally whisked across your cheeks; and after sleepless hours of rubbing and scratching to turn out in the morning with swollen eyelids, and find not an unpunctured spot in your skin where you could place a sixpence! Yet sturdy warriors are these rugged

* The Numidian "Magalia" of Latin authors.—Virg. Æn. i. 421, &c.

mountaineers, and many a hard struggle do the annals of French conquest record; while there is scarcely a turn of those passes which has not claimed the blood of many a pioneer of "civilization," or behind which the matchlock of the Bedouin has not been used with deadly aim. Long after the rest of the country had succumbed this guerilla warfare continued. I remember a story of a friend of mine, a savant in Algiers, who had accompanied a body of troops for the sake of naturalising, and who, hearing guns go off as he sauntered with his companion in the rear, observed, "Ah, on chasse ici!" "Oui, mon ami," was the reply, as the pinge of another bullet was heard, "et c'est nous qui sommes le gibier."

After examining a limestone grotto running far into the rocks, but half choked with stalactites, we halted at a solitary little auberge, called the Ruisseau des Singes, ensconced in a sheltered nook, and completely concealed till the moment of reaching its door. Here we had intended to pass the night, as evening was drawing on, but, to our disappointment, the place was crammed with visitors on their way to the annual races at Algiers, and we were compelled to proceed. The scenery now became truly grand, more Alpine than Pyrenean. Sometimes the traveller finds himself directly in face of a tremendous precipice, its top generally veiled in mist. As he is apparently advancing up a cul-de-sac, on a sudden the road turns, and he finds himself winding in another direction, but still as completely closed in before and behind.

Night was coming on when we arrived at the most magnificent but the most dangerous portion of the gorge, where the road was narrow, and for the most part unprotected. With only a small portion of the starlit heaven visible overhead, the beetling cliffs seemed to

close us in above, and the stream dashed far below. Presently a distant howl rises on the still air—the yell of the Bedouin becomes more distinct. We endeavour to push on to avoid the long train of mules on the narrow road. Our horses become unmanageable, plunging till we are carried from side to side to the very brink of the precipice. The Bedouin in long line come down on us, yelling like demons, or rather, in their white burnouses, like ghosts ejected from their cold lodgings in a French cemetery; the ground not having been taken "en perpétuité." Train after train swept by as we stood dismounted at our horses' heads, and in the confusion my poor dog Bob was lost. We turned to try back, but in vain. Omar was ordered to go back in pursuit, while we, leading our terrified steeds, plodded our weary way, Don Quixote fashion, to the Camp des Chênes, a solitary square house, with a shed for horses behind it. Near it we descried the white tents of the military convicts employed in road-making. It is too cold on these mountains to sleep out; we could not pitch our tents, and vainly sought admission to the auberge. An angry female voice within informed us "No food, no beds. We should not have come here could we have got shelter elsewhere. She does not receive the sweepings of her neighbours." But our horses must be fed; and so, after parleying for half an hour, I was bidden to break open the door, which command, interpreting "au pied de la lettre," I essayed to obey, and at length a window opened, and we were ungraciously accommodated with a lantern to enable us to stable our horses and open our barley-sacks. We were then ourselves admitted; and after a feast on cold pork and cabbage-water, were supplied with three thickly inhabited blankets to spread on the tables, and get over the rest

of the night as best we might. Feverish and unrested, we refreshed ourselves by a cold sponge at the horse-trough in the frosty morning, to the unfeigned amazement of a grizzled negro, the only male inhabitant of the place, and, having paid 15 fr. for the use of the tables, departed.

From this place to Medeah the road presented nothing of interest. The mountain region was bleak, and the hollows covered with barley-stubble. Medeah itself is a finely situated Roman and Arabic town, with extensive and fertile valleys round it, and was the capital of the semi-independent beydom of Tittery, which only paid a nominal homage to Algiers. The old palace is now the residence of the Commandant. There is one well-built mosque, now converted into a church; but most of the antiquities, save a portion of the aqueduct, have been destroyed by earthquakes. The place is walled, but only of sufficient strength to protect it against predatory horsemen. By far the most conspicuous building is a huge barrack, commanding the town, from which may be enjoyed a magnificent panorama of the Atlas, and the first range of the steppes which form the Sahara stretching in the dim distance to the south.

The highest peak of the Atlas in the neighbourhood is the Col de Mouzaïa, where are some copper-mines worked with profit, which we visited. The ore, owing to the scarcity of fuel, is not smelted on the spot, but sent down in a semi-roasted state to Algiers, and thence exported chiefly to Swansea. It produces an unusually large proportion of metal for its bulk, and, but for the cost of transport, would doubtless rapidly enrich the speculators. Traces of tin are found in the same veins, and I obtained some rich specimens of galena. But the lead-mines have not yet been worked, except in the

most slovenly manner, and by the natives. The proportion of silver in this ore is said to be 7 per 1000. Near the summit of the Col de Mouzaïa is a deep mountain tarn, unaffected by the droughts of summer, which abounds in leeches, an article of commerce hence, and which is the favourite resort of the widgeon, teal, nyroca duck, and other wild fowl. A little further down are some rich quarries of gypsum, which are extensively worked. The pass below was the scene of many struggles between the French and the aborigines, and the forcing of the Mouzaïa is the exploit selected for a bas-relief on the statue of the Duke of Orleans in Algiers.

Medeah is the head-quarters of the Spahis or native irregular horse, and when staying there in the spring of 1856 I had the opportunity of seeing a grand review of them and of the "Goum" or native yeomanry, in honour of the birth of the Prince Imperial. No grander sight can be conceived than several thousands of these wild horsemen of the desert collected on a bare hill-side, and performing their national evolutions and games in their native costume. The general and his staff took their station near the top of the hill, and below them on one side the cavalry were massed, in front the squadrons of Spahis or permanently embodied irregular horse, with their high-peaked Arab saddles and huge coal-scuttle stirrups, conspicuous in their flowing red burnouses, and headed by their officers, French and native, in scarlet jackets, loose trousers, and large Napoleon boots drawn over them. Behind these were drawn up, rank after rank, with the banners of their respective tribes, the "Goum" or irregular native cavalry, each squadron marshalled by its own sheik; the colours, with the creed of Mohammed embroidered in gold in the centre, being borne by a trusty henchman.

At a given signal the mass advanced slowly at walking pace till in front of the general, each saluting as they passed, and then at once, unslinging their long guns, raised a shout, and cantered in order to the further side of the hill. Having halted a moment here, they wheeled, plunged spurs into their snorting steeds, and, wildly waving their pieces, with a yet wilder shout galloped back. Each as he passed the general's staff in his stride discharged his weapon in the air, and then, rapidly flinging it back, quicker than thought, it hung across his shoulders, and his drawn scimitar flashed over his head. Order seemed to be at an end for the moment, and in wild confusion the whole body galloped hither and thither, yelling and brandishing their swords, till the scene appeared to spectators almost too near the reality of an Eastern battle.

The aghas of the districts, and the sheiks who were subordinate to them, shone conspicuous in gorgeous array, but all, over their richly slashed and embroidered jackets, wore the plain white burnous, reserving the costliest trappings for their horses. The blinders, worn for show and not for use, as none of them reached forward as far as the horses' eyes, were heavy with bullion; the huge bits and curb-rings were plated with silver; the bridles were sometimes of silver, but more frequently of gold-embroidered leather, strung almost to the rider's hands with medallions, amulets, and silver ornaments. But the saddles! Not the most costly harness that ever proceeded from Peat's could rival their price. The arched back, of red morocco leather stretched over a heavy wooden frame, was studded with bullion wrought in grotesque and meaningless devices, while the high peak in front was also wrought in gold; the stirrup leathers were covered with the pre-

cious metals, and the huge slipper-like stirrups were cased rather than plated with silver. The rest of the horse's body was covered to below the haunches with silk or satin clothing weighted by a heavy bullion fringe, till the wiry little Arab was buried beneath his trappings. Occasionally a vigorous plunge would throw aside the silk and display a form, if not so light and fleet as that of the English racehorse, yet more muscular and graceful. With such saddles the riders seemed as secure as in a chair. Some would drop their weapons, and wheeling round recover them from the ground as they leant over the side of the horse and hung by one leg to the saddle, with the peak grasped in their left hand; then, without checking the stride of their charger, they would raise themselves by a bound into their seat.

Some few accidents occurred in the mêlée; one little boy, about twelve years of age, who closely followed his father, the agha* of the great sept of the Arbaa, was repeatedly unhorsed, but, nothing daunted, remounted each time without a tear; another cavalier was carried off for dead, and a third with a broken leg. But more mishaps will occur on a review-day of the best trained cavalry. Soon the bugles recalled the troopers to their posts, and with marvellous rapidity they reformed on the further edge of the hill under their several standards; reloaded; and again and again, till man and horse were alike exhausted, repeated similar manœuvres. As night approached the standards were planted; and far and wide on the hills the various tribes encamped, or rather bivouacked, their horses picketed by their sides, and their saddles serving them for pillows.

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* Agha—the native title of the chief of a district comprising many sheikdoms and several kaïdats, but inferior to a pasha.

The next morning all were in motion to their distant homelands. We met at the diligence office the agha whose son we had noticed so gallantly remounting his charger, bidding farewell to the lad, who was on his way from those wild plains to finish his education at a military school in Paris. The old warrior, decorated with the Legion of Honour on his burnous, and with yet more honourable scars beneath it, could scarcely preserve his Moslem composure. A crowd of attendant friends chimed in with their "Bismillahs" and "Aleikoum Salem," as the boy, thoughtful and downcast, received from his father more sage and weighty counsel than many an English schoolboy does from his. The old man's parting blessing was given and received with an emotion beyond the power of stoicism to conceal; and Tom Brown's father proved himself a better Mussulman on the occasion than the agha of the Arbaa.

On expressing my surprise some time afterwards to a French officer at so great a native sending his son to a Christian (?) capital for his education, my companion significantly observed that he doubtless had good reason to do so, for his fidelity had been suspected, and he probably had received an unmistakable hint that his son would be safer under the guardianship of the Emperor than under his own. What miserable scepticism! As if the Arabs were not so cognisant of the value of French civilization as not eagerly to seek its advantages for their sons without any Government suggestion!

CHAPTER III.

Sunday at Medeah — Protestants in Algeria — First night in a tent — Berrouaghuia — Spahis — Their organization — A strange pet — Open forests — Water forgotten and well dry — A chace after our horses — The Cheliff — Boghar — Panorama of the Sahara — Roman occupation of North Africa — Triple line of posts — Dependence of the nomads on the Tell — Mušitazana — French system of military government — Statistics — Taxation — Bokhari — Arab café — Gardens — Botanical garden — Silos, or underground granaries.

OUR first lonely Sunday was passed at Medeah, for at Algiers we had the privilege of joining in worship with Mr. Weiss's little band of converts, as well as in the public services of the French Protestant "Oratoire." There are indeed a few Protestants at Medeah, as I met with a Genevese watchmaker who had been of the flock of C. Malan in his youth, and with a pious officer of Spahis; but the number is not sufficient to furnish an "Oratoire," for which the Government always requires a certain number of resident heads of families, and the only opportunity of public worship afforded is by a quarterly visit from the pastor of Blidah. It is not to be marvelled at if the numerous scattered Protestants of Algeria present too often an indifferentism greater than that of their Roman Catholic neighbours, and if their children lose all profession of any form of religion.

Through the kindness of General Gastu and the Intendant Militaire we were supplied with means of transport and two clever soldiers belonging to the Military Train, who were to accompany us as far as Boghar —one day's journey to a light horseman, but which we with our baggage proposed to divide into three. We

did not make an early start; but at length our bât horse and three mules are laden with a crowning pyramid of hay surmounting each pair of canteens, and for one day our grumbling Arab must walk with the soldiers. The road winds for some way among mountains bleak and scantily clad with brushwood, but affords occasionally extensive views of valleys trending to the south-east, all carefully cultivated by the Arabs, and yielding rich harvests of barley. But there is no trace of human habitation; not a house, not an Arab gourbi, not a tent can be discovered. Their abodes, like their women, seem carefully to avoid the eye of the curious. At Djelilah, about eight miles from Medeah, the highest elevation in the journey to Boghar is attained, on a rocky ridge covered with gnarled and distorted pine-trees (*Pinus Aleppensis*). Near this spot, on the bare hill-side, we pitched our tents for the first time, and broke half our pickets in the effort. We supped on soup maigre and coffee, and found canvas a poor protection from the chills of an autumn night, even in Africa, at an elevation of 4800 feet.

The next morning, having left the active soldiers to strike our tents and assist Omar in packing the baggage, I started alone to revisit some favourite haunts of the preceding year. As I descended the southern slopes, the scenery changed, the mountain-sides were clad with cork-trees, and numerous flocks were grazing under their shade. The ground was frequently carpeted with various kinds of orchis, among them a very fine and large variety of the Bee orchis, the Orchis lutea with its rich yellow blossoms, and O. longicorna, besides several others.

A line of semaphore posts connects Medeah with Boghar; and guided by these, which are everywhere visible, a horseman may safely leave the track, and ride

through the open woods. A little auberge lies hid under the semaphore of Berrouaghuia, to which I descended; neither man nor horse being loth to try the entertainment of mine host, an old sergeant of sappers, who rejoices like a lighthouse-keeper in the visit of a stranger. Twenty minutes' gallop across the turf brought me to the little fort of Berrouaghuia, the station of a squadron of Spahis. No military post can be conceived more isolated in the wilderness. The fort is simply a square redoubt, with large bastions at each corner. It is built just behind the site of a Roman town, and with its stones. The foundations of the buildings may yet be traced, but there are no inscriptions to indicate the name of the lost city, and a single disinterred column was the sole architectural relic observed.

In a little ravine to the eastward, the banks of which are covered with juniper and small cork-trees, may be seen the tents of a considerable colony of Arabs, the families and dependants of the troopers. These are for the most part stationary, and the head-quarters of each troop of Spahis is permanent, so that the service is very light, and consequently most popular with the better class of Arabs. There are three regiments, one for each province, and each is divided into squadrons and troops, with distinct organization, and which are never camped together, except for occasional field-days, like that described at Medeah. The captain, one lieutenant, sergeant-major, pay-sergeant, and farrier, are always Frenchmen; and though the promotion is slow, yet the service is much sought after by those officers who prefer the freedom and independence of solitary command, with the opportunities the interior of the country affords for field sports, to the attractions and amusements of French garrison towns. By noncommissioned officers

of the Chasseurs d'Afrique and other corps an appointment in the Spahis is always looked upon as promotion. The troopers are entirely recruited by voluntary enlistment, nor is there any lack of candidates for the service. Each man is obliged to provide his own horse, his accoutrements, and clothing, with the exception of the scarlet burnous furnished by government, and in lieu of forage he receives an allowance if he chooses to provide his own, and, his horse being his own property, the State does not suffer by thus commuting the supply of forage and corn. In return for his pay and allowances, the spahi is expected to reside at the station of his troop, and to be ready for service in Algeria whenever called upon; but excepting in war he cannot be compelled to serve out of his own province. He is also at liberty to quit the service at the end of each year, on giving notice of his intention, or providing a substitute.

The duties of the spahis are practically those of mounted gendarmerie, and of staff attendants. They supply the place of the former, who are not employed beyond Medeah, the limit of the civil territory, and all official correspondence is carried on from the station, as far as the most southern outposts, exclusively by spahi couriers. Being in every respect a favoured corps, the French government have found the spahis a most valuable instrument in suppressing the first symptoms of disaffection. So popular is the service that natives of the highest rank are eager to join it; and one of my most valuable Arab friends, the Sheik Bou Disah, eldest son of the agha of this district, and the owner of a rentroll of at least 8000*l.* per annum, was, when I first knew him, serving as a simple private. In constant and familiar intercourse with their French officers, and connected by family ties with the whole surrounding district,

it is impossible for any native intrigue to be attempted without its being soon brought to the cognizance of the authorities through these spahis.

The word Spahi is synonymous with our "Sepoy," and from the same Arabic root, but unhappily for India our system has been organized in a very different manner, while our only trustworthy levies in Hindostan—the Punjaub regiments, and more especially the celebrated Jacob's irregular horse, and similar corps—have been established on exactly the same principles as those prevailing in Southern Algeria.

The traveller who has to remain for a night at Berrouaghuia will be sure of finding a hearty and hospitable welcome from Captain Le Pons, the commandant, and his subalterns, to whom I am indebted for much attention shown on various occasions. To solace his months of seclusion, Captain Le Pons had adopted a somewhat strange pet, a female wild-boar (if the bull may be pardoned), which had been captured when a suckling, and reared by hand. She had all the freedom of a dog, and came in quietly while we were at dinner, grunting for her share, which she took gently from the hand of each guest as she walked round the table. She would afterwards ensconce herself on a mat, and delighted in nothing more than being rubbed on the back with a stick. Occasionally she would withdraw for a few days to the forest, and then return to her home. The fruits of her absence would show themselves a few months afterwards in a litter of pigs—no inopportune supply for the Captain's table, and whose gradual disappearance she bore with porcine equanimity. An attempt was made on one occasion to rear a young boar, who as soon as he arrived at the age of discretion betook himself to a roving life, and at length, returning by moonlight,

was shot under the windows of the fort. It was singular that the Captain's pet eschewed all familiarity, or even acquaintance, with the swine of the establishment, to whose dirty habits her own formed a marked contrast.

After leaving Berrouaghuia we still continued our descent towards the plain of the Upper Cheliff. I rejoined our convoy, and we camped under a tall cork-tree by a fountain for the night. We began now to experience the annoyance of an Arab servant: Omar sulked at having had to walk, and declared he was too weary to cook. While the good-natured soldiers looked to our tents and horses, I was consequently deputed chef de cuisine, P. being very unwell, and I succeeded in making a capital soup of partridge, larks, three onions, and brown bread. We found the temperature far more endurable than on the previous night.

The next morning, after enjoying a cold sponge at the fountain before sunrise, I started again on foot to look out for partridge and rare birds on the route, having appointed a rendezvous for noon ten miles further on, by a well. As I tore my way through brake and brush-wood, the scenery was lovely, the mountain-sides clothed with dark-green cork-trees, and rich valleys below them. Game was abundant, but, though I secured enough for the day's provision, I lost more in the thickets, and bewailed indeed the loss of my truant "Bob."

The different elevations of the mountain-side were distinctly marked by the varying vegetation. We had altogether lost the pine-trees of the summit, some of them noble relics of a vaster primæval forest, and inhabited by various birds not found elsewhere in Africa, such as the siskin and crossbill of Northern Europe. The pine gradually mingled with the juniper and tuyah (*Thuya articulata*), of the root of which, the wood having a

deep red colour, most beautiful furniture is made. These at length gave place to the cork-tree, which covered the lower heights, somewhat open in its growth, and, though called a forest, reminded me rather of the knolls in the west of Ohio, and of the gradual change there from the hemlock spruce to the maple of the opens. The spaces between the trees were beautifully carpeted with flowers of every variety, and afforded rich pasturage to the flocks and herds which here abounded; while the valleys below were tolerably cultivated with arable crops, and neither brushwood nor waste ground was anywhere to be seen. The absence of fences, and the clumps of trees frequently standing out in the landscape, recalled the finest features of park scenery. Only the trace of habitations was wanting to complete the illusion. The wells might easily be detected in the distance by the little groups of white poplars which universally distinguished them, and which, by the bright contrast of their foliage, added in no slight degree to the sylvan beauty of the district.

On my arrival at the appointed halting-place, parched with thirst—for all the wells on my path were dried up—I was equally disappointed there. The bottom of the well presented only a hard cake of mud. The convoy came up, and I found that Omar, with the characteristic improvidence of his race, had disobeyed my strict injunctions, and, counting upon a certain supply here, had neglected to fill the water-skins. It was, of course, in vain that I mustered my most indignant French and Arabic for his benefit, while poor P., still suffering from a feverish attack, groaned on horseback. I mounted my horse, and breakfastless we proceeded. Happily we soon perceived a Bedouin camp, and sent Omar in quest of water. He returned successful, and we dismounted, kindled a

fire, speedily cooked our game, boiled our coffee, and were soon again in the saddle. Our path crossed repeatedly the little mountain torrents which feed the Cheliff, and we descended somewhat abruptly into the valley of the river El Hakoum. Here might be seen the perfection of Arab cultivation. Large plots of velvet turf alternated with fields of barley and wheat, but no fences, and few trees. The wide vale extended to the eastward far as the eye could reach. Our horses enjoyed a gallop which hitherto the ravines had rendered impossible. The ground was covered with flowers of every hue, and conspicuous among them were the scented yellow tulip (*T. celsiana*), convolvulus, crocus, iris, and three kinds of mignonette. We could now distinctly perceive the little town of Boghar in the distance, perched almost on the summit of the highest mountain in the neighbourhood. To the eastward the limestone rocks of the opposite ridge were singularly scarped, forming an even line of precipice, a complete natural fortification, a favourite nesting-place of the golden eagle, which here abounded, and often approached us within shot. At one point there was a singular opening in the crest of the mountain range, called by the Arabs El Kantara,* the Gate of the Desert, and having all the appearance of a colossal gateway hewn through the cliff by some Titanic hand.

During this ride we had a misadventure which might have entailed inconvenient consequences in the mountains. Having flushed a covey of partridge, we both dismounted and went in pursuit, leaving our horses loose. On our return to the spot they were nowhere to be seen.

* Not to be confounded with the more celebrated El Kantara, near Biskra.

We examined carefully the tracks, and found they must have gone off in a gallop. Taking a traverse, or short cut, in less than an hour we came up with the cavalry standing quietly at a corner, but learned a lesson of caution for the future.

We soon descended into the plain of the Cheliff, here a tortuous stream winding through a deep sandy soil. It is the most considerable river of North Africa west of the Nile, the ancient Chinalaph; and rising in the Djebel Amour, near El Aghouat, pursues a northerly course till near Boghar, where it turns westward, and enters the sea after a course of upwards of 200 miles, near Mostaganem. A bar across its mouth prevents it from being available for navigation, as it otherwise might be, for some distance. In the drift gravel of its banks the bones and teeth of hippopotamus have been frequently found, but whether of the present or of extinct species I am unable to state, having lost my specimens. The hill-sides near it were here bare of wood, and deeply scarred by the action of winter torrents. We passed a sheik's grave, distinguished by streamers of white rags and coloured handkerchiefs fluttering over a heap of stones. After fording the river three times the steep ascent to Boghar was commenced—rugged and difficult for any horse.

The mountain side is but sparsely wooded, but there is an abundant undergrowth of tuyah, juniper, and two pretty species of dwarf evergreen oak (*Quercus coccifera* and *Q. ballota*, called "bellout" by the Arabs), whose acorns are eagerly sought after and sold in all the markets of Algeria. The bellout is a principal article of subsistence among the poorer natives, cooked in various ways like chesnuts, but generally made into a sort of heavy brown bread. The taste is very slightly

astringent, and not much inferior to the chesnut if the inner skin of the acorn be carefully taken off.

Boghar, though dignified by the name of a city, is a mere military outpost, with a handsome "Bureau Arabe" outside the fortified position, and a small French and Spanish village rising below, under the shadow of the fortress, an apt figure of French colonisation. An Arab tribe was encamped not far off. The chef du bureau, to whom we presented our credentials, politely invited us to stable our horses, and his lieutenant offered us the use of his empty room during our sojourn: a proposal of which we gladly availed ourselves, and got in our bedding from the mules a couple of hours after nightfall.

In the morning, having appreciated our night under a solid roof, we set out to enjoy the fine panorama from the heights. We could see the Hauts Plateaux, or first Steppes of the Sahara, on whose confines we were standing, and the range of peaks called the Seven Sisters bounded the horizon sixty miles off to the south. Close by us, under a solitary, bare, bark-denuded tree, two white-burnoused Bedouin sat motionless, emblematic of a nation in decay, in a land whose verdure and luxuriance have for them passed away. "Your land, strangers devour it in your presence." On returning to our quarters we found one of our soldiers, an active handy Frenchman, endeavouring to supply Omar's deficiencies, squatted down with a short pipe in our room, and busily employed in repairing our tent.

The position of Boghar marks it out at once as an important military post, standing as it does on the edge of a precipitous mountain, 4200 feet above the level of the sea, and commanding the vast expanse of the plain of the Cheliff, here the northern frontier of the Sahara. From its elevation it is particularly

healthy for Europeans, though exposed to severe cold in winter, with heavy rains and occasional snow. That the Romans appreciated its strategic importance is evidenced by the remains found here, consisting of vallum and fosse, now partially destroyed by the French works: a few sarcophagi have also been dug up; and a single shaft, with Corinthian capital, lay prostrate near a Roman wall at the time of my visit. It is interesting to note these remains, as they mark the extreme point, with one exception, of Roman occupation in the south-west of Algeria.

The entire absence of any remains in the Sahara seems conclusively to prove that the conquerors never attempted any occupation of that inhospitable region. For the detached post at Djelfa, to be noticed afterwards, appears to have been established for the sake of the salt-works, and not part of any military line. In fact, it was needless for those who were masters of the Tell to invade the Sahara. As the southern nomads say of themselves, "We are the subjects of our stomachs." The Tell is their only granary, whence they procure corn by barter for wool, hides, dates, ostrich-feathers, &c.; and they will never hesitate as Mussulmans to pay tribute or swear allegiance to the lords of the north, though Christian infidels. "The land of the Tell is our mother, it is married to our father."

Consequently, excepting in the eastern province of Africa proper, the ancient conquerors were content with the tribute and nominal submission of the Gætulians. Their Carthaginian predecessors, it is evident, never penetrated beyond the coast-line, finding alliances with the Numidian and Mauritanian kings more profitable than costly military stations. The Romans would appear to have held the country by a triple line of

fortified posts. First, their great cities were studded along the coast, wherever nature or art could supply a harbour for their small sailing craft. These were the provincial capitals and the centres of true colonization.

Next, as nearly as possible on the crest of the Atlas range, was a long line of fortified cities, many of them military colonies, commencing from Cirta (Constantine) in the east, and uninterruptedly continuing as far as Timici Colonia (Aïn Temouchurt), on the Marocain frontier, and containing the important posts of Sitifia Colonia (Setif), Medeah, Milianah, Teniet el Haad, &c.

Thirdly, ran a parallel line of merely military outposts, commencing from Capsa (Gaphsa), Tipasa (Tebessa), itself, however, a colony, and including Aquæ Herculis near Biskra, the Præsidium of Bouçada, Boghar, Musitazana, and thence bending northward as it approached Morocco, and ending with the remains at El Bridje, Pomaria (Tlemsên), and Rubræ (H'adjar Roum). Near this line was Lanigera, since the victory of the French better known by its modern name of Isly. These latter have almost exactly for the last few years followed the system of their Roman predecessors. Their lines and posts are almost if not altogether identical, as indeed the nature of the country dictated.

No inscription reveals the ancient name of Boghar; but following the crest of the ridge, which here trends to the south-west, we come to another post with far more complete remains, called Wed Saneg by the natives. A temple stands tolerably perfect within the walls, about 30 yards in length from north to south, and 16 in width, and divided into three compartments.

Behind the sella to the north are four distinct apartments arranged semicircularly—the dwellings of the priests (?). All the columns remain except two, and over

the portico on the south is the following inscription, slightly imperfect at the left extremity :—

ERTINAX AVG ARABICVS
TIFEX MAXIMVS TRIBVNICI
ET
G. TRIB. POTVIT. COSS. II. ET
ERTINACIS AVG ARABICI
VRELIAN. ANTONINI PII [:::::]
MVSITAZANENSEM [:::] PER
CONSTITVERVNT.

The spot is now utterly desolate; ancient records and modern life are alike without traces of the citizens of Musitazana.

In quitting Medeah we leave the civil and enter the military territory, *i. e.* we exchange the rule of prefects and gendarmes for the law laid down and carried out by men of the sword alone; which, if more arbitrary, is certainly less vexatious than the former.

At Boghar we obtained our first insight into the system of military government which is administered by the officers of the Bureau Arabe south of the line of the "Territoire Civile." Though a horrible murder and scandal in the province of Oran have lately tended to cast discredit on the system, yet we may take, I think, the sentiment of indignation echoed throughout Algeria at that atrocity, and the punishment inflicted on Captain Doineau, as corroborating the testimony of all travellers to the general integrity and justice which characterize the *military* administration. Boghar is the head-quarters of the first subdivision, and comprises four aghaliks, subdivided into the districts of 17 kaïds and 105 sheiks. The latter office is still hereditary in each portion of a clan; the kaïds and aghas were formerly

also hereditary, but have under the French rule become life appointments made by the governor. In practice, however, they generally descend in the same family, unless where a suspicion of infidelity has arisen, when some other rich seigneur is nominated. The power of the agha, formerly extending to life and death, is now limited by an appeal to the Bureau; not, however, a very prudent step on the part of an Arab who wishes to remain with his tribe, for a religious as well as political character pertains to the office.

The population of the district at the last census was 35,600 souls, and its wealth consisted of 26,203 camels, 16,815 head of horned cattle, 413,890 sheep, 80,066 goats, 7196 asses, 300 mules, 1039 stallions, 2115 mares. The taxes are raised by a fixed assessment on each animal, which remains the same as under the rule of the Deys, with the slight difference that then it was rarely paid without war, now it is regularly collected. The tax is 25 centimes on each head of sheep or goats, 1 franc on horned cattle, and 5 francs on horses. Camels, asses, and mules are exempt if liable to the corvée, or impressment for military service, often far more oppressive than any impost, but uncertain in its demands. Thus the direct taxation of the district amounts to more than 6000*l*. The indirect taxation and the uncertain revenue probably amount to much more, as almost all offences are expiated by a fine, the greater portion of which is supposed to go into the treasury. It is these fines which afford the greatest temptation to peculation both on the part of the native authorities and the French subordinate officials. The former, unless much belied by common report, are in the habit of fining a culprit in a mitigated penalty, if he will pay them a certain douceur.

Among our excursions at Boghar was a ride down the hill, across the Cheliff. and up the opposite ridge, to the Arab town of Bokhari; the first purely native city we had met with, so much so that no European is on any pretext permitted to sleep within its walls. This regulation is enforced to prevent quarrels between the races. On the slope outside is held every Monday (or Tsenin, *i.e.* second day) the great wool-market of the country. Buyers come from the coast with camels' loads of barley and bales of coarse French fabrics, which are bartered for the wool, the finest imported into France. The sheep of the South Atlas are said to be the progenitors of the Spanish merino, but, whatever be the quality of their wool, their forms partake rather of the uncouthness and ruggedness of the Bedouin than of the grace and dignity of the Spaniard.

Bokhari is also the rendezvous of many native dealers in the white burnous, the Arab dress of perpetual wear. After huckstering for these in the trapholes called shops, and laying in a stock of capsicums and onions for our journey, we dived into a thoroughly Eastern café, where, seated cross-legged on a mat under an alcove, we enjoyed a view over the rich alluvial but sun-dried plain, and sipped our black coffee at one sou per cup. There is not a tree near the place, but under the cliffs are many gardens, green throughout the summer by the water of the springs which gush from the rocks in various directions.

From the arcade of the café we witnessed an interesting illustration of the Scriptural expression "wateredst it with thy foot, as a garden of herbs," * while watching an Arab turning with his foot the little rills which

* Deut. xi. 10.

were to refresh each row of vegetables. To stoop would have been too undignified a posture for the proud Moslem, who, while scarcely deigning to look down to his work, admitted by turns the allotted portion of liquid to the thirsty plants, and then dammed it off by raising the earth with his foot.

Similar fountains in yet more abundance gush from the rocks at Boghar, which is indeed a favoured spot in this arid wilderness, and much resembles a hill town in the south of Judæa. One of these fountains, emerging from a grotto in the limestone, supplies a neat experimental garden or "pépinière," which, though yet in its infancy, promises to become valuable by its lessons to the natives. It is liberally supported by the government, which never grudges its aid to any scheme for the advancement of *physical* civilization, so long as it be carried on in due form and with an adequate supply of officials and paper.

In riding across the plain we found it rather dangerous to diverge from the beaten path, owing to the "Silos" or "Mottamorhas," as the Arabs call them, in which, under the protection of the fortress, the surrounding tribes hoard their grain for winter use. Near them are some threshing-floors, merely square patches of cowdung and clay, on which the sheaves are spread and the corn trampled out by oxen or mules. This process completed, equally rude is the winnowing, performed simply by throwing the grain into the air with a large wooden shovel, until "the chaff of the summer threshing-floor" is carried away by the wind. There were scores of these mottamorhas together, circular pits in the earth, each about six feet deep, and scooped out till they were somewhat of the shape of a stout earthen pitcher. No brickwork is used, but, a slight layer of straw being

spread at the bottom, the corn is thrown in, straw again spread over it, and the soil carefully beaten down on the top. As each tribe has its own treasure-houses carefully selected and watched, they are not exposed to sudden marauding inroads; while the owners, if obliged to retire before a superior force for a time, may hope that only a portion of their hoards will be discovered, and that they are at least secure from a conflagration.*

* Utilissime servantur in scrobibus, quos Siros vocant, ut in Cappadociâ et in Thraciâ. In Hispaniâ et Africâ ante omnia, ut sicco solo fiant, curant; mox ut paleâ substernatur. Præterea cum spicâ suâ conduntur.—Pliny, H. N., xviii. 30. The last particular seems to be the only one in which the ancient differed from the modern usage.

CHAPTER IV.

Departure from Boghar — Fainéant farrier — Lock the door — Wayside cabaret — In the Sahara — Camels — Jacob's flocks — A mirage — Paradise of waterfowl — Flamingoes — Plovers — The Sheik Bou Disah — Falconry — A bustard-hunt — The sandgrouse — Costly birds — Sunday in the Desert — Natron deposits — Whirlwinds — Pillars of sand — Bedouin on the march — Camel-tents — Aïn Oosera — Formation of the Steppes — Geologic record — The Zahrez — Fast in the sand — Salt-rocks — Intelligent guide — Manufacture of saltpetre — Note on the salt-hills of Herodotus.

THE military authorities very kindly granted us free transport for our bulky baggage in a government train-waggon, or "prolonge" as far as El Aghouat. There being military caravanserais along the whole route, we congratulated ourselves on being freed from the care and annoyance of the commissariat for the next ten days, and gladly forwarded all we had, except the contents of our holsters and valises, indifferent to the necessity of composing ourselves for a night or two in our burnouses on the floor.

On the morning of our departure I rose before daybreak to look after the farrier, who had faithlessly neglected to shoe the horses. After an hour spent in rousing him, and another hour in vainly endeavouring to prevent his putting soft or cracked iron into the shape of shoes, I returned to our quarters to find that, having omitted to lock the door, we had been robbed most inopportunely of articles it were now in vain to attempt to replace. A pistol, large sponge, and various other indispensables had vanished. Little did we suspect what we afterwards discovered, that Omar was the thief. I could

but reproach myself for being yet a very young traveller, and, pocketing losses and indignation, we rode down the hill at once, and with our faces southward were in the Sahara. To our surprise we found the convoy, which, though it had left Boghar the day before, evidently valued "au point du jour" as little as the farrier, still loitering at the door of a cabaret. Here, following Dugald Dalgetty's maxim, we secured breakfast, and I obtained the skins of a magnificent lämmergeyer and an Egyptian horned owl (*Otus ascalaphus*) which had been but recently shot.

Our day's ride was dreary enough. We passed a desolate-looking Arab cemetery on a hill-side, unfenced, and the graves marked, not by headstones, but by a collection of rough unhewn slabs surrounding each, and so placed as to prevent the hyænas and jackals from feasting on the dead. Occasionally a few tattered rags, fluttering like scarecrows in the wind, marked the resting-place of a sheik. The soil during the first part of the route was extremely rich, at least 20 feet of alluvium, and all under barley cultivation, but the crops are very precarious, and this year had proved an utter failure from the want of rain, so that no attempt had been made to reap them. The plain was intersected by the bed of a stream, now dry excepting in a few deep holes, and these strongly impregnated with salt. Beds of natron frequently appeared through the soil, sometimes horizontal, but occasionally broken, and at various inclinations, as if from the effect of earthquakes. For five leagues the plain was often intersected by low ranges of rolling hills, at once suggesting by their form the idea of their having been successively the coast-line of a gradually receding ocean.

After crossing the fourth of these little ranges we

entered upon a vast plain or steppe, bounded to the south only by the peaks of the Djebel Sahari. Flocks of thousands of sheep and herds of hundreds of camels browsed over its area, seeming at first sight like rows of white stones scattered in groups through the plains. Cultivation has now entirely ceased; we see no more the numbers of Arab dwellings, the black tents of Kedar, which had relieved the first few miles of our route. The raven's croak adds to the sensation of vastness and solitude as the traveller finds himself for the first time alone in the Sahara. There was little game to be seen. The most common bird was the raven, generally perched on the back of a camel. We observed that, while the sheep grazed spread out in a long line, the camels invariably browsed in single file, following each other at regular distances. The sheep were of a very different breed from any we had before seen; much larger than those of the Metidjeh, and frequently horned, with the long drooping ears so familiar in Italian landscapes, and very rarely pure white. Jacobb's ring-straked and speckled, dappled with white, black, and especially light-brown, preponderated.

We here for the first time saw the mirage of the desert. A most perfect picture of trees surrounding a long narrow lake beguiled us some miles out of our course, and then gradually disappeared in the expanse of sand. We, however, avenged our disappointment on an immense flock of dotterel (*Charadrius morinellus*), tender and good, apparently on their autumn migration southwards. At nightfall we reached the station of Bouguizoun, where was a scanty supply of muddy water and a desolate two-roomed hovel, without attendant, for the accommodation of travellers, but where our

Arab had found means to cook our dinner, and where we could enjoy a comfortable night in our sheepskin bags.

Not far from this is a small salt lake, which I had visited for a few days during the previous spring, and which abounds in birds of every variety. Conspicuous among them is the flamingo. On approaching the lake a long white line could be seen stretching right across it, looking somewhat, by its slightly undulatory motion, like the foam of a line of breakers on a reef. But the alarm is given: the white line becomes animated, rises, and expands—first of a snowy white; then, as the birds simultaneously turn, unfolding thousands of black wings, it appears a dark speckled confused mass; then, as they wheel from the spectator, the soft pink colour of their backs and wing-coverts absorbs all other hues, and screaming, with outstretched necks, they fly off, an animated rosy cloud. It is the most gorgeous sight on which the naturalist's eyes can feast. The flamingoes are most difficult of approach, and it is only by a chance flock crossing overhead that a shot can be obtained. But though the flamingoes have gone on the first alarm, myriads of birds remain: ducks are swimming literally "en masse;" clouds of the pretty white-winged black tern are playing overhead and making feints almost within reach; while the beautiful black-winged stilt, the tamest of waders, daintily lifts his long pink legs as he gracefully stalks through the shallows, or more hurriedly leaves the nests which are profusely scattered round us, unprotected and unconcealed among the mud and grass.

The opposite side of the lake is bordered by a mass of tall reeds, into the recesses of which the water-hens and purple gallinules are hurrying, and from whose thickets resounds the harsh note of the great sedge warbler or thrush nightingale, mingled with the gentler strains of

many lesser aquatic warblers. On all sides of us the collared pratincole is exercising its arts, like the lapwing, to lure us from the eggs which lie scattered on the hard dried mud, dropped by threes into any chance camel's footmark; and groups of little Kentish plover are running rapidly by the water's edge.

My three days' sojourn went but a little way to exhaust the ornithological marvels of Bouguizoun, though I worked and noted from sunrise to sunset. The Sheik Bou Disah, whose guest I was, had brought with him his falcons, and afforded me an opportunity of observing for the first time the Arab falconry, a sport still pursued with all the zeal, skill, and science displayed by our ancestors in the "noble mysterie." The villein who presumed to raise his hand against the king's deer was not more certain of condign punishment from the Norman than the plebeian sehaur who should dare to cast a hawk in the Sahara. No agha or sheik of high degree ever moves for war, pleasure, or business unattended by his falconers, who are his confidential lieutenants. The care of three falcons is considered sufficient employment for one falconer with an assistant; and on the march one or two of these important personages follow mounted immediately behind the sheik, with a hooded falcon on the wrist, one on the shoulder, and another on the top of his head. The houbara bustard is the favourite quarry, but eagles, kites, sandgrouse (and, in the case of the large sakk'r falcon, the gazelle), afford equal sport to the huntsman.

Our day's pursuit was to be the bustard. When one is descried the whole cavalcade instantly halt; the hawk on the wrist is transferred to the hand of his master, who, attended by the favoured few, instantly sets off, and, unhooding his bird, throws him towards the

bustard. Much skill is exercised in drawing the attention of the falcon to the game before it rises. Should it unfortunately take wing before its pursuer has poised herself above it, an ill-trained or impetuous bird is very apt to strike it in the air; this, according to the view of your desert connoisseur, is a most unpardonable and unsportsmanlike offence, to be punished with death. A skilful hawk will at once rise to a considerable height; then swooping down, make feints till the bustard takes to its legs instead of its wings. The falcon then poises herself over it, while a second is flung off the wrist, and the two together give chase, the speed of the houbara being such that a fleet Arab horse can scarcely keep up with the pursuit. The poor bird runs along, aiding its speed by a perpetual fanning with its wings, its head stretched forward like a corncrake's, and its conspicuous black and white ruff folded close over its neck, a pitiable contrast to the proud fellow who was lately strutting with head erect, elevated crest, and expanded ruff, challenging all comers. The pursuers hang over him at the height of only a few yards, and at each effort he makes to take wing swoop down with a feint. It is considered the excellency of a falcon to make these feints at the quarry till he is nearly exhausted, when the fatal swoop is made, and the bird instantly drops, struck dead by the hind claw having pierced its vertebræ.

This manner of hunting is probably adopted to afford more prolonged excitement to the horsemen, but chiefly from the singular mode of self-defence adopted by the houbara, and which I observed on this occasion. As the hawk approaches the houbara ejects both from the mouth and vent a slimy fluid. A well-trained bird eludes this shower by re-

peated feints, until the quarry's supply of moisture is exhausted. An impatient one rushes in, and gets his whole plumage so bedaubed that his flight is materially impeded, and his swoop when made is irresolute.

Three houbaras and some sandgrouse were captured in this day's expedition by three falcons, and the chase was terminated merely on account of the fatigue of the horses. Bou Disah expatiated much on the chase of the gazelle, and I have seen one brought into camp taken by these means. But this is a very dangerous pursuit for the falcons, who frequently impale themselves on the horns of their prey. It is not uncommon for both pursuer and victim to fall dead at one mutual stroke.

In the pursuit of the sandgrouse no such dallying is allowed as with the bustard. The covey rises, the hawk is thrown off with a jerk, another and another are cast off in rapid succession, each singles out his own victim, and strikes him in mid-air. But the same falcon is seldom trained for both sports. The flight of the sandgrouse resembles that of the golden plover, and they attempt in wheeling circles to rise above the hawk. Thus, scattering at a great height, they often distract his pursuit, and unless the falcon has been unhooded and thrown the very moment they were flushed, they are frequently successful. The education for this chase is by means of a trained raven, who wheels in circles over the young bird, tempting him higher and higher.

The apparatus of African falconers seems to be the same as in the olden time among ourselves—the same hoods and gloves, the same care in feeding, and the same quaint remedies and nostrums. The price of a well-trained lanner, or *sakk'r*, is from 200 to 300 Spanish dollars; and on the commission of a friend in England,

I repeatedly offered, but in vain, 200 dollars. The sheik esteems a falcon as of the same value with a thoroughbred horse, and will exchange one for the other. No wonder then that I found it impossible to obtain a specimen for my collection. Indeed, it would have been a crime of the blackest dye to have shot one, had I had the opportunity. The Arab holds with old Master Latham—

> "A faulcon is a prince's pleasant sport.
> 'Tis sport and pleasure delightful to the eye,
> Haggard hawke with mounting lark to flie.
> Amidst your pleasures, then, take this delight,
> Maintain the faulconer and his faulcon's flight."

Our first Sunday in the desert was passed at Bou Guizoun. The convoy had gone on; and alone in the midst of that vast open plain, with not a living creature in sight, save our two horses picketed by our sides, we remained, and joined with those at home in the services of the day, as solitary in appearance as Elijah in the wilderness, but not the less conscious, I trust, of a guardian eye over us, and enjoying the privilege of that Form of Prayer which united us in communion with those far away.

Our next day's march was to Aïn Oosera, a military caravanserai, ten leagues distant. It was a genuine piece of desert. When we halted at noon for food and rest, we looked in vain for the slightest shelter of rock or hillock. Not a vestige of green could be traced, though the plain was sparsely covered with scorched tufts, the parched remains of the last winter's vegetation. One species of shrub, about the size of heather, existed rather than grew in tolerable abundance (*Nœa spinosissima?*), with leaves almost microscopic, and as brown as the sand whence they drew their nutriment.

Narrow strips of gypsum frequently rise to the surface, and in places are so even and regular that they give the plain the appearance of having been scored in long chalk lines with a ruler. Besides the gypsum, masses of natron appear in layers in many places, and assist in variegating the weary brown of the surface. It is somewhat strange that the French have turned these inexhaustible mineral resources to so little account. Our manufacturers import thousands of tons of natron annually from the plains of South America where the facilities for carriage cannot be much greater than in Algeria; but the idea of developing a traffic in the mineral wealth of the Atlas seems never to have suggested itself to the French authorities. Yet, at present, with a railway from Blidah to Algiers, and the military road opened from thence to Boghar, the purest natron could be delivered at the coast at a charge of from 15 fr. to 20 fr. per ton for carriage. But the same system which has hampered by its paternal interference the working of the copper-mines is not likely to encourage capitalists to attempt the Sahara. "Hélas! nous sommes trop gouvernés," is the exclamation of every enterprising colonist.

The morning was sultry, and the sky cloudless, when we observed what seemed to be a waterspout gliding, or rather wheeling, along the horizon, followed by several others in rapid succession. One of these dark columns crossed our path not above a hundred yards in front of us, and at once we saw it to be a cloud pillar, or whirlwind, moving rapidly along in a circular course, with a rotatory motion, and sweeping with it volumes of sand. I fancied I could trace its course by the clean swept appearance of the surface. As the pillar drifted by us it was narrower at the top than in the centre, and then

gradually expanded till its summit was lost in a misty cloud of sand. Near as we were, we were not sensible of any current of air, though the atmosphere was unusually oppressive. I recollect having once witnessed a similar phenomenon in the island of Bermuda. In a garden on a hot summer's day I was startled by a sudden rushing sound, and, looking round, saw a whirling pillar of branches and leaves, which struck a stable near me, and in a few seconds stripped off a large portion of its heavy slate roof, and passed on, breaking the shrubs and flowers in its course.

The Arabs attempt to dissipate these sand-pillars as seamen do waterspouts, by firing into them.

We passed troops of gazelle feeding in the distance. One troop of eight turned round, gazed at us for a moment, sniffed the air, and tossing their heads trotted slowly off. We quietly followed them. The same scrutiny was several times repeated, but on each occasion they took care to increase their distance till we discontinued the pursuit.

We next met a Bedouin tribe performing its migration like the birds. First came the sheik on horseback, with his long-barrelled flint and steel gun slung across his shoulders, and accompanied by three mounted attendants. We saluted him, as we passed, with "Salem aleikoum!" to which he returned a cold reply, "Peace to the sons of the faithful—Beni cadiqi salem!" and we asked for milk and eggs, which were not to be had. Next followed some scores of camels, laden with tents, firewood, water-skins, and all sorts of household utensils, guarded by a few ill-mounted lads and men. Most conspicuous were some top-heavy camels, with enormous semicircular hoops across their backs, canopied with white stuff, the carriages of the younger women of the

tribe. Presently we saw a youthful beauty peeping cautiously at the strangers from behind her curtain. Neither her features nor her toilet were such as to send an arrow to the heart of any European. These camel-tents are formed by three or four wide slips of flexible wood, fastened to the outside of a huge pannier, and then bent over so as to meet the outside of the opposite pannier. This affords spacious accommodation for at least two women and several children. The tent of one of the largest camels seemed to be occupied by four females. Behind these came the oldest and poorest women of the tribe driving asses, some of them laden with strings of live poultry. A few ragged retainers, not worth a horse, brought up the rear. Next followed herds of goats and flocks of sheep, driven separately by men on foot, and last of all a few cattle with a couple of mounted warriors. It was thus the Patriarch Jacob and his family proceeded on his way to meet his brother Esau. How stereotyped for ages has been every custom of daily life among the pastoral tribes of the East! Want of water, we were told, had driven this party to move northward towards some of the scanty salt streams we had lately passed.

We afterwards rode more quickly on till we came upon the signs of life in a few stunted gnarled jujubes (*Zizyphus spina-Christi*), giving some promise of water. After mounting a sloping bank we crossed a muddy fetid stream, whose edges were crowded with various birds, land and water, and a few minutes more brought us to the gate of the caravanserai of Aïn Oosera; a square white building with loopholed forts in each corner, and an arched gateway opening into an extensive courtyard. On two sides were apartments for the human visitors, on the other two were open arched sheds for the quadrupeds.

We were asked to join with a party of French soldiers, an intelligent sergeant of Spahis, and a commissariat clerk, who gave us a melodramatic account of his campaigns in Africa, reduced to drink mud for water, and to grind his barley for bread in a coffee-mill. The leisurely convoy was also here, and I was able to stow away the skins and specimens I had been accumulating.

The next ten leagues presented the same monotonous landscape, with stunted herbage, and vast lines of camels feeding. Occasionally there were some small clumps of terebinth, acacia, and jujube, near which were generally to be found gazelle, bustard, and sandgrouse; and one solitary pool, the rendezvous of the feathered tribes, till we arrived at Guelt Estel, a caravanserai the exact counterpart of the last.

Equally dreary was the first part of our next day's ride; we were again tantalized by a mirage, and riding towards it discovered what we had taken in the morning mist for distant bushes to be camels reposing. No other sign of life occurred in this waterless expanse, save a few vultures and a solitary raven investigating the anatomy of a decaying camel.

But we are rapidly approaching the Djebel Sahari, a long ridge parallel to the Atlas range, and forming the boundary of the second steppes or Hauts Plateaux of the Sahara. Each plain as we advance to the south is more elevated than the preceding. The elevation of the sea-bottom would seem to have been caused by no sudden convulsion, but by a gradual and successive upheaval commencing from the southward. For ages perhaps the motion ceased, and the ocean beat upon a gently sloping shore, forming bays, indenting the coast-line, undermining hills, and so by the fall of the superincumbent mass creating steep precipices. Then again the earth began to

heave, and a narrower limit circumscribed the waters, till the last remnant of sea was but a long strip enclosed between the Atlas and the Djebel Sahari. At the final elevation of North Africa this was either drained into the Mediterranean by the Gulf of Cabes, or evaporated into clouds, leaving its briny sediment to encrust the low lands, and impregnate the drainage of the hills. As we ride on, we might imagine that the sea had only ebbed for a few hours from those rolling sand-banks in front, their loose soil held together by the lalpha, a tough bent-grass, and studded here and there with tamarisk bushes. The withdrawal of the ocean northward is inscribed upon the shape of every mound we pass.

We rode between the two Zahrez, immense shallow lakes, often nearly dry in summer, and fed by mountain streams both from north and south. The length of the western Sebkha is a little above 30 miles, of the eastern one about 25, and the extreme width rather less than 10 miles. At the time of our visit they did not extend over half this space, and the surface for miles was encrusted with a crisp white coating of crystallized salts. Though the streams which feed the western Sebkha are salt, yet there are several sweet fountains both on the edge and within the circumference of the lake. One of these, at the western extremity, which I did not visit, was stated to me by the Arabs to rise almost in the centre of that part of the lake, and to have such force that, while the water at the edge is not available even for camels, they are in the habit of wading in and supplying their goatskins with potable liquid at the spot where the spring bubbles up. Flamingoes there were in myriads, but of other birds a remarkable scarcity in comparison with their numbers at other and smaller pieces of water.

Soon on a loose shingly bank of gravel we overtook the convoy, which had spent the day stuck fast in the sand. As it was to remain for two or three days at Djelfa, only a day's journey beyond, we passed it without anxiety. In front of us stood out a jagged bare mass of hills, isolated from the mountain range behind, and without a vestige of vegetation. These were the Rochers de Sel, in Arabic "Hadjera el Mêhl." They are flanked on either side by small mamelons covered with stunted herbage. A little stream flowing from the south winds between these naked hills and the mamelon to the west. It is perfectly sweet before reaching this place, but afterwards intensely salt from the numerous springs which here flow into it. We rode up a horse-path by the side of a little crystal-fringed stream through a narrow gorge which opened almost directly upon the caravanserai.

After putting up our horses, and causing sentence of death to be passed on sundry fowls, we returned to examine the hill. The diameter of the salt-rocks appeared to be about half a mile, and the whole are covered with a débris of blue slaty clay, mingled with sharp fragments of limestone, very much decomposed. The surface is superficially calcined by the combined action of sun and rain, and this débris, allowing the water to percolate, has gradually melted the salt-rock underneath, and then, falling in, has formed deep circular holes, the sides of which are honeycombed and lined with glittering stalactites of salt. These are the roosting-places of flocks of rock-doves, who seem to have the same attachment to the mixture of salt and lime as is evinced by their domesticated descendants in the dovecote. On climbing to the summit the scene presented the appearance of a cluster of craters of

some extinct volcano. Numberless dark cavities were seen below, but the largest were in the centre. We descended, and, following the course of a little gorge on the south, entered an amphitheatre, faced on one side by a perpendicular wall of blue-grey rock-salt with some 40 feet of earthy débris covering its top. On all sides trickled forth small springs, which combined to form the rivulet up whose channel we had clambered. This stream, like all the others which issue from the group, is encrusted with a thick coating of salt of dazzling purity, crystallized by the action of the sun, and often assuming fantastic forms. This incrustation is sometimes a foot thick. The same coating clothes the surrounding ground, and the illusion of a half-frozen river covered with a heavy fall of snow would be complete but for the intense heat of the sun overhead. It is difficult to conceive how the immense mass of débris, none of which bears any trace of having been waterwashed, has accumulated on the salt.

Adjoining the solid salt-rock on the west is a small hill formed of masses of limestone, which appear as though they had been shaken out in a heap from the lap of some old world giant, and tell of the recent action of earthquakes. The highest point of the group is a hill to the northward, an unbroken mass of limestone. On this and on a similar one to the south grow a few stunted tamarisks and junipers. But excepting on these two points it requires close investigation to discover the traces of vegetation, consisting of some saxifrages, spurges, a few small thistles, and two very pretty statices. I gathered a few specimens of coloured flint pebbles, crystals of gypsum, pyrites, and three or four fossil shells apparently tertiary. A few ravens and a pair of golden eagles seemed only to add to the desola-

tion, for the pigeons either remained in their caverns or had taken wing at our approach.

The next day we remained to revisit the rocks, having engaged a native soldier of the tirailleurs to conduct us to the caverns. But the warrior only dragged us up and down impossible ravines, chattering in mongrel Arabic of his campaign in the Crimea; and exhibiting under the folds of his burnous his English medal, gave a lively description of the several engagements by a rather vague imitation of a volley of small arms, and the commentary "Morto bezzaf, bezzaf." (Numbers, numbers slain).

In vain we exhibited our candle, and begged to be led to the grotto. His delight was to throw stones and shout down the holes, startling the rock-doves, in his eyes far more interesting objects than the wonders of nature. At length he brought us to a deep shaft with a cavern at the bottom, and, pelting up a sleeping owl, audaciously declared this to be the object of our search.

Returning to the caravanserai, after some delay we obtained an intelligent guide in a Strasburg soldier, the only European of the little garrison, who took us to the grotto, which is merely the subterranean course of a stream, the top and sides covered with glittering stalactite, and the bottom paved with rock-salt. The bore, supplied evidently by the water percolating from the surface, pierces the rock to a great distance, but suddenly contracts in diameter.

The salt is government property, but owing to the cost of transport is only as yet made available for the supply of the troops in Africa, and for the markets of the inland towns. We were amused at the indignation of our guide on finding that a company of camels had arrived during the night, and that the Arabs had laden

them with the salt he had amassed for the convoy to convey to El Aghouat. However, an hour or two of labour would soon suffice to supply the loss. The Bedouin usually prefer the blue rock-salt to the pure crystallized deposit of the streams.

However inaccurate may be the statement of Herodotus with respect to the five mountains of salt in the interior of Libya being at exact intervals of ten days' journey, yet modern researches seem to have proved the truthfulness of the information of the father of history as to the main facts.* How admirably does his expression "a ridge of sand,"† rather than a plain, describe the edge of the northern Sahara! Again, we can undoubtedly discover hills of rock-salt at uncertain intervals, but averaging ten days' journey between each, through the whole ridge from the oasis of Ammon to the Atlantic.

The five mountains of salt mentioned by Herodotus have with the exception of the last been identified with tolerable certainty. About those of Ammon and Augila there can be no question. The third hill, in the country of the Garamantians, both Rennell and the later authorities place in Fezzan, and Rawlinson observes that it has a ruined city, Germa (Garama), once the capital. The fourth, Rennell would place at 'Ghadames, where, however, there have been no salt-*hills* yet discovered,

* The Hadjera el Mêhl is, without doubt, the spot described by Dr. Shaw (i. 97) as "the eminences and salt-pits of Zaggos," as he states them to be a little way beyond the Seven Sisters mentioned above, a few leagues to the northward of Saary (Dj. Sahari). They are, however, not salt-pits, but rocks. It may be noted that the rock-salt is of the grey or bluish colour, and with the same bitter taste which Shaw observes of the salt-rocks of El Outaia, near Biskra, and is in the same way prepared by the natives. The sal gem sold by the Beni M'zab, and mentioned by Shaw, is, so far as I could ascertain, really obtained at the Hadjera el Mêhl.

† ὀφρύη ψάμμης, iv. 181.

and Rawlinson vaguely places it among the Touaregs of the Western Sahara. Admitting that Herodotus may in this, as he evidently was in the case of some of the other salt-hills, have been misinformed as to the distance, and has considerably understated it, we may place the fourth salt-hill station on the caravan route from Fezzan to Carthage either at 'Ghadames or elsewhere, and then in looking for the fifth salt-hill we shall find ourselves not far from Haddeffa (Hadyfa), the first salt-hill mentioned by Shaw, and which the Arabs call sixteen days' journey from 'Ghadames. As the tracks of the caravans have remained unaltered for ages, the fifth hill must either be looked for on this route or on the westerly route from 'Ghadames to Souf, which is also sixteen days' journey.* This course is followed only by caravans to the western oases, and not to the coast, consequently we can scarcely conceive it probable that Herodotus had any direct information concerning it.

Again, though there is an oasis with many wells at Souf, there is no salt, and it is nine days' journey thence to El Outaia, the next known salt-hill. When I visited the Sebkha, the ancient lake Tritonis, on the western side of Hadyfa, the whole plain for two days' journey was encrusted with a thin crisp coating of salt deposit, thus again corroborating the description of Herodotus.†

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* See map of the caravan routes.

† The Kabyles are in the habit of purchasing large quantities of the "sal gem" for the manufacture of saltpetre, and the French government have used the utmost vigilance to intercept their supplies. Their mode of manufacture is very rude. I have seen the M'zab engaged in the process of extracting saltpetre from the saline incrustation of the Chott, near Waregla. This they do by erecting large tanks of stone, with split palm-branches laid across them about half way up. Over these coarse matting is spread, the upper portion of the tank is filled with the saline substance, and water constantly poured upon it. This

But if we agree to place the Atlantes at Hadyfa, where the rock shines of a purplish pink hue, we must resign all attempts to identify the Atlas peak of Herodotus, which probably is a confusion between the Phœnician tradition of the Peak of Teneriffe and the Mount Zaghouan, the only conspicuous isolated mountain in the regency of Tunis, but which is too far north to be seen from Hadyfa. Still, being one of the great landmarks on the caravan route, an exaggerated description of it might easily have been here misplaced. But almost accurately true is the further observation of Herodotus, διήκει δ' ὧν ἡ ὀφρύη μέχρι Ἡρακληίων στηλέων καὶ τὸ ἔξω τουτέων· ἔστι δε ἁλός τε μέταλλον ἐν αὐτῇ διὰ δέκα ἡμερέων ὁδοῦ καὶ ἄνθρωποι οἰκέοντες (V. ch. 185). Twelve days' journey due west from Hadyfa is the salt mountain of El Outaia, and nine days further the Hadjera el Mêhl. Beyond this again are the Djebel Menes, and others, of which, however, I could gather no further precise information from the Arabs, except that Hadjera el Mêhl are to be found at intervals right across the south of Morocco.

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filters into the bottom of the tank, and, after the process has continued for a few days, the matting, with all that remains upon it, is removed, the water below is allowed partially to evaporate, and then the sediment is boiled away until the saltpetre is crystallized. From the scarcity of fuel I presume they do not proceed further in the manufacture, but carry their saltpetre to the Kabyles, who, burning charcoal and in some way or other obtaining sulphur, produce a considerable quantity of inferior gunpowder.

CHAPTER V.

Roman ruins — Djelfa — A countryman in the Sahara — A dilatory Dragoman — A cold sponge — Dr. Riboud — Botany of the Desert — Saharan pool — A young wife — Aïn el Ibel — Forced colonization — Sheep-farming — Rat à trompe — The general hoaxed — Bedouin shepherds — Large camp — The commander's tent — Hospitable cook — Commandant Marguerite — Battle of the horses — Hairbreadth escape — Touareg embassy — Puits Enez — Honest companions — Arrival at El Aghouat.

FROM the Rochers to Djelfa, our next halting-place, was only a six-leagues ride up the course of the Wed Melah. The scenery was pretty, to our eyes charming, in contrast with the quaker-like drab which had clad the desert for so many miles; with a little cascade and low ranges of thuya covering the hills on either side, which were broken and diversified. On the way was a curious collection of ruins, which tradition assigns to the Romans. They occupy the whole enceinte of a low isolated table-rock, by the side of a sparkling stream which emerges from a tunnel just above, and waters some rich cornfields below. If the ruins be Roman, admirable as is their strategic position, they are constructed with much less care than that people usually expended on their masonry. They may, however, have been hastily thrown up for the shelter of a distant outpost, or in the advance of Theodosius against Firmus and Igmazen.* At all events they are not Arabic, and must, I think, be ascribed to a period antecedent to the arrival of the races which now roam over the district. Their character is that of

* Gibbon, ch. xxv.

small square dwellings surrounding a large oblong court-yard, and they must have been quite strong enough easily to resist a sudden attack of cavalry.

Five or six miles further on, a water-mill has been recently erected, chiefly from the materials of Roman remains. Many tombs have been discovered here, and a few unimportant inscriptions and coins, all of the later Empire. But near the same place have been found many tombs of a very different character, and exactly like Celtic remains of the Stone age. The graves are formed of three or four large stones, with a very massive top slab, and smaller stones heaped round them into the form of a cairn. We saw several stone arrow-heads which had been dug up in the same locality. Do not these traces indicate an occupancy prior to the Roman invasion, perhaps by Gætulians, in times more ancient than Herodotus, and before the Greeks had introduced the knowledge of bronze, or the Phœnician traders that of iron? Other tombs resemble the ship-tombs of Scandinavia, oblong circles of stone, with larger pillars at the head and feet. But these latter approach much more nearly the modern Arab mode of sepulture.

Djelfa itself, the highest village in the Djebel Senalba, and a little above the Roman post, is 3400 feet above the level of the sea, cold and bleak. The barrack, or Bureau Arabe, is a square redoubt enclosing two arched and colonnaded hollow squares—one appropriated to man, the other to beasts and stores. There are a few French cottages outside, the inhabitants of which are employed in sawing timber in the neighbouring forest; and the black and white striped tents of a squadron of Spahis occupy the other slope; while opposite is another green mamelon with an unfenced cemetery, consisting of three nameless graves, and as many more recording the

mouldering tenants. Picketed horses and scattered tents complete the dreary picture.

The convoy had not arrived, and the Chef du Bureau politely invited us to dine with the officers—our only chance of a meal. We were pleased at finding a compatriot in one of the noncommissioned officers, a sergeant of spahis; for in this lonely and desolate spot there was no distinction of rank at the mess-table. Our countryman had led a life of strange adventure ere he found himself commanding wild Arab horsemen in the desert; but of his home-history was willing to confide nothing, save that he had not always been in the position in which we found him, a statement which it did not require much evidence to corroborate. In another of the party, the medical officer of the detachment, we discovered a distinguished naturalist, Dr. Riboud, whose papers and contributions on botany, in conjunction with M. Cosson, have rendered his name well known to all interested in Algeria. The day of our arrival was auspicious, as it was the first time the new mess-room had been used. But a cold welcome awaited us on our departure at ten o'clock to our camp. The convoy had arrived, but our worthless Omar had spent three hours in chatting and smoking with the spahis, and amidst a storm of wind and rain we had to unpack our tent and bedding, and pitch as we could in the dark; lying down with the comfortable anticipation of finding our tent blown away in the morning.

On rising before six we were surprised to see the ground covered with hoar-frost, and found a cold sponge on the icy turf outside a tent an operation more severe than luxurious. As the convoy was to halt here two days, we were in no hurry to precede it, and I spent the time in exploring the neighbouring forest, where flocks of crossbill combined with the temperature to remind me of

Norway. I also visited an Arab falconer among the spahis, and saw his mews of five well-trained sakk'r falcons. The birds were flown for my gratification, and returned to their master's wrist with the utmost docility.

I was surprised to observe, on looking over Dr. Riboud's collection of Saharan plants, that there were included many species new to Africa, but identical with those of the deserts of Arabia and of Scinde. Thus from the Indus to the Atlantic we find the flora of the salt plains impressed with the same general characters.

We happily, on quitting the officers after dinner, discovered the advantages of travelling under military law. The captain had admonished Omar that any negligence on his part would be promptly visited by the bastinado without further ceremony; and the tent was pitched, couches strewn, and coffee boiling on our arrival. The next morning we set out literally "au point du jour," which we had discovered to be a loose expression for any hour between midnight and midday.

We soon leave the straggling pines, and descend into another strip of table-land with another of these interminable ranges in the distance. After five hours' ride we halt at a wayside fountain, *i. e.* a muddy ill-savoured pool in a hole in a rock. No tents are in sight, but an ancient grizzled Bedouin sits overlooking a girl, dirty but well-favoured, who is filling goatskins with water, while an ass stands by to receive the burden. She is a mere child, not fifteen, but her arms tell of hard labour, and the elder, who would have thought himself degraded by assisting her, tells me she is his daughter, and a wife and mother. He objects to our using his pool, and, while we are parleying, up comes the convoy, and Omar, mounted on the top of a waggon in all the glory of utter idleness, proclaims from aloft that we have halted too

soon, and must go on to the fountain of Aïn Sidhar, a clear stream descending from the hills in front, but soon lost in the sand. Here are some "gourbis," and we innocently picket our horses in an Arab garden, mistaking the melon-plants for wild colchicum; purchase eggs, and dip into a stream swarming with leeches, which, scornfully rejecting P.'s suggestion, I refuse to secure for future use.

Night brings us to the ridge under the shelter of which lies the caravanserai of Aïn el Ibel, where for the first time we meet with a wood fire, over which we are glad to sit. Streamlets gush from all parts of a rising hillock, and the French government is making a grand attempt to force "colonization" on the Arabs. They are compelling them to build a bazaar, mosque, aqueduct, in fact, to create a "centre;" and as we ride out by moonlight, the plain round glows with the glare of brick-kilns, reflecting the ghost-like shadows of thousands of Arab workmen, sitting, sauntering, or sleeping. We took them at first for sheep feeding; but at the sound of our horses' feet they start up into burnoused Bedouin, like Highland clansmen rising from the heather at the pibroch of their chieftain. Mute and unimpassioned as they seemed before, they now stare with the curiosity of savages.

The immense number congregated here was afterwards accounted for by the information that at this point the territories of three very powerful tribes meet, and therefore the spot has been selected for a bazaar and general commercial rendezvous. The principal tribe, the Weled Näyl, are said to be not Arabs, but descendants of the Mauritanians who came into this country from Morocco in the thirteenth century, and who extend from the province of Oran to Constantine. In

the liberty, or rather licence, accorded to their women they differ remarkably from their nomad neighbours. One of the other tribes, the Weled Saâd Ben Salem, partially occupy themselves with the chase of the ostrich, of whose range this is the northernmost limit.

The whole plain of Aïn el Ibel is a fertile alluvial deposit, and capable of growing an unlimited supply of cereals, but is wholly neglected and abandoned to sheep pasturage. It is said to extend over forty million hectares. Wherever the ground has been turned, as near the caravanserai, a soft delicate herbage springs up, and the keeper exhibited with triumph huge onions, and pumpkins measuring six feet in circumference. Many of the Arabs are wealthy, and said to have incomes of 500*l.* a year from the produce of their sheep, which can be purchased here at about 15 fr. per head, and yield annually cent. per cent. from the produce of the wool and lambs. Here is an opportunity for an enterprising colonist as sheep-farmer, if the right of squatting were acknowledged.

In a small rocky ridge near, is the only locality in the province where the "rat à trompe," a little rodent with hind legs like the jerboa and a long snout (*Macroscelides rozeti*), has been found. When the species was first discovered, General le Vaillant offered rewards to his soldiers for specimens, and was promptly supplied with other desert rats, to the end of whose noses pieces of their comrades' tails had been ingeniously affixed. Some of the specimens were actually sent to Paris before the trick was detected.

Through this plain lay our next day's ride, and abundance of bustard, sandgrouse, jerboas, and other small rodents beguiled it pleasantly enough till noon, when we halted by the side of a pool, at the Arab fort

of Tah't Meh't, where a sparkling stream with banks overhung by oleanders emerges for a few hundred yards from the sand, and is presently lost in it again. Under their shade we cooked our dinner and sipped our coffee, while I prepared some skins of a new species of wheatear obtained on the way. Omar was in high dudgeon at having been left by the convoy in the morning, and refused to eat our bread or salt, a suspicious sign that the Arab had blood in his eye.

While we were resting, large flocks of sheep and goats were led down to water, mingled in about equal quantities. The Bedouin shepherd was generally walking in the midst of each flock, and we observed one carrying in his arms five lambs and kids which were too young to walk. "He shall gather the lambs with his arms, and carry them in his bosom."

As we were about to depart we were startled by the gallop of Arab troopers coming down to water their horses. They gave us to understand that the Commandant Marguerite, the French chief of Laghouat and the whole South Sahara, to whom we had letters, and in whom we hoped to find a host, was camped for hunting a league or two off. Having despatched Omar to the next caravanserai to prepare for us, we hastily saddled and accompanied a volunteer guide, who carried a goatskin of water at his saddle-peak, to seek out the great man. We rode over broken ground, thickly matted with tall reedy grass, and came upon an Arab camp of a tribe we had not met with before, comprising about 200 black and red striped tents. They were chiefly arranged in two large hollow squares, with many outlying stragglers. The whole male population seemed to be loitering in groups, sitting in circles, or cutting the long coarse herbage for fodder, while their helpmates, acting beasts of burden, were bearing it on

their backs to the camp. At the doors of the tents sat women unveiled, spinning or weaving, and surrounded by groups of filthy half-naked children. Other women were driving camels and asses homewards in long file, all laden with grass. Innumerable curs angrily and uncourteously announced our arrival, and horses neighed impatiently at their pickets. Mounted Bedouin were riding recklessly through the throng—a scene of Eastern bustle and busy idleness. Camels without number, flocks of lop-eared sheep, and ring-straked and speckled goats, completed the oriental picture.

About a mile or two further on a group of white tents announced the great man's camp, and a gallop across the plain soon brought us to his door. We pulled up at a marabout tent in the centre of the group, surmounted by a gilt crescent, with tall peaked tents, gaudily lined within, at a little distance on either side, for his Arab attendants. The Commandant and his companion had not returned from hunting, but a little hunchbacked Parisian cook, ladle in hand, advanced and gracefully received us. I, in particular, with my burnous strapped loosely behind my saddle, a huge tin botanical box slung on one shoulder, and a game-bag stuffed with specimen boxes on the other, looking on the whole rather like a dilapidated tinman, must have owed my reception to the innate politeness of the chef de cuisine, rather than to the certificate of my appearance. He invited us to await the commander's return, for we are sure to see him, and what is better, waving, as he spoke, his ladle towards a sheep that lay by us tied by the legs, "encore de plus, vous mangerez un bon diner." He then instals us in the Commandant's tent, where we drink light beer out of massive silver, and survey the culinary operations in front. A few noble horses are picketed about, and

Arabs from time to time bring in game, fruit, or vegetables.

After a couple of hours a fine gazelle-hound comes bounding towards us, and claims confraternity. The gazelle-hound appears to be the African representative of the Scotch deer-hound. It has much of the greyhound type, but a dash of the mastiff's strength withal, and combines scent with speed. The colour is uniformly tawny, and the hair short and smooth. These dogs are very scarce, and strictly preserved by the chiefs. They are the tallest dogs I ever saw, except perhaps the St. Bernard.

The celebrated Commandant soon follows his favourite: a tall massively-built soldier, with broad low forehead, clear determined eye, and prepossessing appearance. We have a taste of desert luxury. Seated on a velvet couch, and our feet on a Turkey carpet, we sip Bordeaux and munch huge slices of water-melon. As we present our letters and unfold our plans of desert travel, the Commandant sits peering through us, and at the end invites us to sleep, which we decline. He then says it would be an ill compliment to ask us merely to dine, with a desert ride in prospect after nightfall. He promises us rooms in the engineer's quarters at Laghouat, to which place he is about to return in ten days, and directs a "goum," or mounted cavalier, to escort us to the caravanserai of Sidi Mahk'loof, whither we had sent on our servant.

Night is beginning to fall as we reach the Arab camp, from which we eventually disentangle ourselves, our horses keeping up a running skirmish with teeth and forelegs amongst the tents. We ride over hilly ground, and at last strike into a stony path, the military road. But our horses, who, provoked by the mare of our guide,

have long been uneasy, now become suddenly maddened, and rush on one another open-mouthed. P. and I, each with a loaded double-barrel in our right hand, for we were on the look-out for bustard, are powerless. The steeds strike each other with their forelegs, screaming and rearing frightfully; P. at last contrives to wheel his round, but the encounter continues. Mine plants his forelegs behind P.'s saddle, and literally tears his great-coat off his back by strips with his teeth. I was clinging to the neck of the rearing brute when P.'s horse, kicking furiously, struck me on the edge of the left eye. I fell stunned to the ground, but contrived to disentangle myself. When I came round I was standing half stupified, and two Bedouin, who seemed to have sprung from the earth during the contest, were scarcely able to hold the raging horse. P. had spurred his to a distance. We found the casualties, besides wounds and P.'s narrow escape of a broken back, to be divers cuts in both saddles, one of my flaps cut in two, and a stirrup-leather severed; my botany box stove in, and holsters cut to pieces, while two specimens of what I believe to have been a new mammal were hopelessly gone. Truly it was a merciful deliverance in many ways, for a raging horse is as dangerous as a wounded boar, and had the blow struck my temples I must inevitably have been killed. Again, how I managed to escape from under the legs of the maddened animal, only that ever-watching Providence can tell, who guards us even at the ends of the earth. A black and swollen eye, and severe headache for two days, were the only evils I sustained. Shaken and half paralyzed I was obliged to ride on in the dark on the still-excited horse, and after an hour of torture reached the hovel or caravanserai of Sidi Mahk'loof, when I was kindly bandaged

by P. The leeches, alas! now invaluable, had been improvidently rejected.

The next day was Sunday, and body and mind longed for a Sabbath rest. During the night we were aroused by a neighing, and found our three horses had broken from their pickets, and were wandering no one knew where. A horse-hunt in dressing-gown and slippers, among African rocks by moonlight, was no pleasant sport, with an aching head and bruised body; but every man his own groom is a desert law. At length we recaptured one, marauding among some mules, and the others in various directions. We invoked Omar to the rescue, but in vain; he wilfully slept and grunted through it all, and strongly tempted me to forget my dignity and use more touching appeals to his feelings.

The next day's journey was through a rocky desert country. During our noonday halt we met a long train of camels, a complete caravan, bearing presents from the Touareg and also from Timbuctoo for the French government. These gifts were in acknowledgment of the reception given to the representatives of the Touareg chiefs the preceding year at Algiers, and as a pledge of the agreement entered into that the trade at the frontiers should be free. They consisted of ivory tusks, gold-dust, large bales of blue cloth, packages of dates, ostrich skins and plumes, and red morocco leather; and were accompanied by a French officer appointed to escort the caravan from Laghouat. The gifts have been innocently interpreted as a tribute and recognition of French supremacy, which however it would be impossible to exercise over these inaccessible nomads.

We afterwards passed a low-lying strip of sand-hills on the west, with the marks of an ancient sea-beach; on the east a higher range of mountains, with the stra-

tification regular and horizontal. Near the crests, which were flattened and of even height, was a long straight indenture, as of an old coast-line, with waterworn caverns; the even peaks having perhaps formed a chain of partially covered reefs. As we proceeded a similar phenomenon presented itself on the other side; the ridge in the distance bearing a resemblance to a flight of colossal steps, but, on more nearly approaching it, it exhibited, like the former, a series of long horizontal parallel lines, as if caused by a gradually subsiding ocean. It is curious to remark how all these apparently ancient sea-beaches show traces of having been waterwashed only on their north sides, the southern fronts being generally impressed by the characters of a gently sloping inland plain.

After sticking for some time in the mud caused by the recent rains, unwonted occurrence! we halted for the night at Puits Enez, where there was no caravanserai, but where the French government had recently sunk two wells. The officer who discovered the water had unconsciously dug his own grave, for just after obtaining his decoration for his services he fell into his own well while superintending his workmen, and was drowned.

We camped in pleasant company—two soldiers of the 2nd battalion d'Afrique, a condemned corps, bringing back an ill-fated deserter, men who, as our brigadier informed us, could look you in the face and pick your pocket at the same moment—who could, with unmoved muscles, tell of their injured innocence while knowing that you knew they were habitual thieves. The deserter, a morose-looking fellow, had completed all his term of service except two years; now he will have the dark hole and bread and water for two months, and then

thirteen years' service in some condemned corps. He was not in any way guarded, as he had no money, and, if he escaped, the Arabs would hunt him down in a couple of days for the sake of the regular reward offered. We found in the morning that our companions had sustained the character of their corps, for brushes, towel, and fork had mysteriously disappeared through the night.

Our next day's ride was by the base of a continuous chain of steep ridges, again with an even water-line very near the crest, and presenting a singularly serrated appearance (the Djebel Lazareg). I counted no less than 127 little peaks rising above this straight horizontal line, almost all of them of equal height, like the crests of a long sea-reef; and lower down the sides were many tidal strings, if I may so term them.

Turning round to our left and crossing the dry channel of an evaporated and aged "Wed," we had some low headlands close behind us—Ras Ainyah of the Arabs, "Prise d'eau" of the French—the scene of a bloody combat under General Yusuf. Through an opening between the mountains we debouched on a wide plain, and suddenly before us stood an isolated ridge of rock. Two cliffs facing each other bore each a bastioned tower, and in a depression between these lay a town. In front a dense dark forest of 20,000 graceful palm-trees embosomed the Arab city. Could this be El Aghouat? At last we are at the furthest outpost of civilization. We ride through a muddy swamp with a scanty shallow stream flowing northwards, and soon see mud walls peering through a forest of date-palms, whose fruit just now (1st November) is ripening. Outside the forest is a deep sandy soil under barley, but all the trees are enclosed by high walls of mud or rather of

sun-dried bricks (mottes), composed of blackish clay and cemented with mud.

We had to make a long détour to find the narrow opening between these walls which leads to the gate of the city. This is new, of French construction, and through a neat arcaded street we rode directly into the "Place," a pretty square with various tall palms growing irregularly in its enceinte, and formed of well-constructed public buildings. The house of the commandant, the Bureau Arabe, the "Cercle" or military club, and the engineer quarters occupied two sides, with a row of French shops at one end, and the Beni M'zab bazaar at the other. With the exception of two or three half-finished French streets, the rest of the town was mud built and composed of squalid Arab hovels, with no windows, and low doorways several steps below the level of the street, thus effectually concealing all domestic arrangements from the stranger's eye. We found that Commandant Marguerite had kindly sent on an express, and that preparations had been made for us by the officers of engineers, who hospitably received us and had a late déjeûner awaiting our arrival. Here we were to rest for ten days, examine the country, and prepare for yet further wanderings.

CHAPTER VI.

Laghouat — The view from its citadel — Carpeted roofs — Turkish bath — Storming of Laghouat — Native heroine — Manufacture of morocco leather — Value of pomegranate rind — Teeth to let — Gardens — Cultivation of the date-palm — Date-wine — A female saint's reward — Geological features — Primitive plough — Barley cultivation — Birds — Dayats — A wounded gazelle — An equine practical joke — Squadron of donkeys — A sportsman's dinner party — Kouskousou — Boat-launch at Laghouat — Daring exploit of the Commandant — Omar's rebellion — A new Dragoman — The Kadi of Berryan — Scarcity of water-skins — Farewell party.

A FORTNIGHT'S repose at Laghouat enabled us to take a leisurely survey of the oasis, for such it literally is, and of the surrounding district. Dull and monotonous as must be these quarters to the troops stationed here, there are abundant objects of interest to the passing stranger. The buildings, the plants, the people, all were new. Following the excellent traveller's maxim of climbing at once to the highest point and thence taking a survey of the place or country if you would comprehend its topography, we mounted to the top of one of the twin peaks between which lies El Aghouat (or Laghouat as the French have abridged it), and surveyed the prospect. To the north and east the view is bounded by the rocky ranges we had lately passed; but to the south and west stretches the boundless desert, without a visible trace of life, animal or vegetable, and the horizon melts in the distance unbroken by a single elevation. We see at last the real desert. We can distinguish no more Hauts Plateaux following each other, and concealing a patch of verdure behind each

succeeding range. To the north and south of the isolated oblong ridge on the summit of which we stand are the two palm-groves, or rather forests, of Laghouat, divided indeed into minute portions by high mud walls, but which are not detected until in the midst of them.

In these palms the city is literally embosomed, and we were charmed with the prospect, so thoroughly Oriental, so unlike anything we had yet seen in Algeria. At our feet were spread the flat roofs of the town. No streets could be seen, but an occasional palm struggled through the brown mass. It should scarcely be called a *brown* mass, for the roofs were of every colour, carpeted with pumpkins, melons, capsicums, pomegranates, and dates, spread out to dry or to ripen. The rich contrasts of the red, yellow, and green gave the effect of the confused but brilliant patterns of the Turkey carpet, in which the crimson capsicum or pimento predominated.

On the housetops were many brown Arab women, in garments as discoloured as their skins, sitting with their legs bare; busily employed in spinning after the simple Eastern fashion. The whole race seemed to have taken the vow of the Spanish heroine, and not to have washed since the arrival of the French. It is to be hoped that they may now use the Moorish baths, which have been built by the rich and public-spirited sheik of the Beni Aghouat, and which had been opened the week of our arrival by the strange and most unmoslem-like ceremony of sacrificing a goat on the slab.

At the foot of the rock is the simple square tomb of General Bouscaren, who died of his wounds at the storming of the place; and we were shown the spot where an Arab heroine who still lives in Laghouat repeatedly rallied the *men* and led them to repulse the French columns. General Yusuf and Marshal

Pélissier headed the two divisions at the siege, on 4th December, 1852, and the Arabs had planted on these heights three cannon, obtained by land carriage through Morocco, and which had been cast in England. It was almost the sole occasion during the African war in which they made use of artillery, but here, shielded by the walls of an old plastered marabout, they worked their guns with effect and did fatal execution, two superior officers falling in the assaults. On one slope is the Mussulman cemetery, on the other the Christian, both unenclosed and open to the feet of numberless dogs and camels.

The French have erected Laghouat into the centre of a military circle conterminous with that of Boghar on the north, and with the nominally dependent confederacy of the Beni M'zab on the south. Though the Arab population of the city is only 2700, yet that of the nomads who depend upon it is 32,000, divided into five aghaliks. Small as the place is, it is divided into two quarters, which in the olden time of independence were frequently engaged in internecine warfare, as the inhabitants were of different tribes. There are but 850 camels, 5600 sheep, and 1800 goats belonging to the inhabitants, but they derive some wealth from the custody of the corn grown in the district or imported from the Tell, most of which is here deposited by the wandering tribes when they move to the south for pasturage.

The women carry on an active manufacture in "djellali," or horse-housings, which have a great repute; in dyed "djerbi," or blankets; in haïks; and especially in "filali," or morocco leather. The filali, which is always red, is considered equal to that of Morocco. The secret of its preparation con-

sists simply in the tannin used, which is the inner rind of the pomegranate, a most powerful astringent. So prized is the rind, that here, where the fruit is most abundant, and beneath price, the skin sells for more than its measure in wheat, a very costly commodity. The best rind for the purpose is that of the wild or bitter pomegranate, and it is a common practice to send the crier about the souk or market, exclaiming "Who will let out his teeth to peel pomegranates?" and the dyers actually hire masticators to provide them with tannin.

But the principal source, both of wealth and subsistence, here as in all the oases, are the gardens, of which there are 391, all watered by the Wed Djidi, whose stream is intercepted by a dam just below the groves. These gardens yield three simultaneous crops. First of all the closely planted surface supplies carrots, onions, melons, pumpkins, cucumbers, red pepper, tomatoes, beans, maize, cauliflowers, &c., which flourish luxuriantly under the thick shade. Over these rises a dense mass of fruit-trees—apricot, peach, almond, quince, and many trellised vines, and, above all, a second dome of date-palms (djereed). The taxes are raised by a small payment for each fruit-bearing tree, and, besides 20,000 female and 500 male palm-trees, the last census gave 26,000 apricots, 6600 peach-trees, 24,500 figs, 1300 quinces, 2400 pomegranates, 800 pears, and 1100 trellised vines. A considerable quantity of "hermez" or dried apricots are exported, but the date-palm is the most carefully cultivated. The male trees blossom in the month of March, and about the same time the case containing the female buds begins to open. To impregnate these a bunch of male flowers is carefully inserted and fastened in the calyx. Towards the com-

mencement of July, when the fruit begins to swell, the bunches are tied to the neighbouring branches.

The dates are ripe in October, at which time any premature rain is fatal to the crop, much as water is daily required at the roots. Not less pernicious are the north and east winds in March and April. The best trees are those produced from slipped plants. Those from seed are much longer in arriving at maturity, and are generally poor. When the slip, taken from the foot of the stem of an adult tree, is first planted, it must be watered daily for six weeks, and every other day for the next six weeks, after which the trees are watered once a week in summer, and every month in winter. They begin to bear when eight or ten years old, being then about seven feet high. Each year the lowest ring of leaves falls off, so that the age of a palm may be roughly calculated by the notches on the stem. It will live for at least 200 years, but after a century its fruit begins to decline, and it is generally then cut down for building purposes; for its timber, however worthless in itself, is much prized in a country where there is no other wood whatever. Some trees produce as many as twenty bunches, but the average in a good year is from eight to ten bunches, each weighing from 12 lbs. to 20 lbs. Each proprietor has a right to one or two hours' water in the day from the stream which passes by his grounds, and this right is always specified in the title-deed by which he holds his garden. Before the dates are ripe each family is bound to set apart one tree, all the fruit of which is consecrated for the service of the mosque and the use of the poor.

From the juice of the palm-tree is made a liquor called "laguni," of which the Arabs are very fond, although it is fermented, but which, to my palate at

least, was very sweet and insipid. It is produced by simply making an incision in the top of the tree, taking care to reach the centre. A funnel is attached, by which the sap flows into a vessel, and the palm thus yields about ten quarts every morning. A tree may be bled for two months, if the incision be freshly opened every day, to prevent the healing of the wound. The operation will kill the plant if continued too long, but, cautiously practised for a few days, will often invigorate a sickly or ill-bearing palm, like the pruning of our fruit-trees.

The cabbage, or heart of the date-tree, is also eaten, and the taste approaches that of the chesnut, though it reminded me more of the sweet potato of the West Indies. But the cabbage is never cut, except when the tree has fallen or been felled, as the loss of its crown invariably destroys the plant.

The Arabs count fifteen varieties of dates, of which the deghetnour is considered the best for keeping, and three other kinds are preferred fresh. Of the origin of one of these a pleasant legend is told. There was a poor woman, aged and childless, who was very devout, named Touadjah, and who longed in vain for the means of making a pilgrimage to Mecca. So poor was she, that she had not even money wherewith to purchase a string of beads, but, gathering date-stones, she contrived to pierce them, and strung them into a chaplet. With these she daily and hourly performed her orisons, and, constantly visiting the Marabout of Sidi Abd-el-Kader, implored the Prophet that he would not charge her poverty upon her as a crime, but admit her to the same place in Paradise as she would have gained by a visit to his own shrine. When she died, the chaplet, her only earthly possession, was buried in her grave. The spirit

of the Prophet visited it, and the tears he shed germinated the date-stones, which sprung up into a group of trees, and proved the sweetest species of date that had ever been produced.

Before ascertaining the geological formation of the country, it is impossible to understand how the oasis of Laghouat has been formed, or how a never-failing supply of water can be secured for the nourishment of the palm-trees. In other oases there is generally something in the dip of the strata, or the configuration of the surface, which at once explains their creation. Not so here; a short isolated ridge with two peaks rises in the midst of a plain, and round these peaks, which are a true "hog's back," χοιραδες, "las Puercas," as a Spaniard would at once term them, clusters all the fertility, with a swamp in front.

All the desert streams are fed by hills, through whose limestone deep perpendicular fissures penetrate. Below is a substratum of much harder rock (secondary), which arrests the downward progress of the water. During heavy rains some of the water flows on the surface, and has formed the "Weds," so frequent, but so rarely supplied with moisture. But these are merely superficial channels. Beneath is a subterranean course, and it is only when this is filled that any water is supplied to the upper channel. Through such a subterranean channel the Wed Djidi forces itself during a course of nearly seventy miles from the north-west, passing beneath Laghouat, and feeding the wells of Puits Enez by the way, until, some miles to the south of the oasis, it meets an impervious basaltic ridge, like the "troubles" or whinstone dykes of our coalfields. This forces it back to the low ground of Laghouat, where, attempting to double

northwards, it rises to the surface, forming the morass, and creating "palm-groves islanded in the waste."

The low ground is certainly capable of more extensive cultivation, and, under the energetic rule of Commandant Marguerite, the Arabs were, at the time of our arrival, preparing a large tract for barley. The soil was light sand mixed with rich alluvial deposit, and doubtless, were the palm-groves extended, would yield an abundant return of rich amber clusters. The tillage is simple enough. The ground is first turned up by a primitive plough, with no earthboard, no iron used in its construction, but merely a long sock, sharpened at one end, laid flat, to which are attached two beams, one for the draught, the other for guidance, fastened into their places by pegs of wood. In using this plough the Arabs seem to have a religious horror of a straight line. It is so likewise in their gardens, the walls of which make the most eccentric zigzags and irregular curves. When the ploughing, or rather scraping, is completed, short ridges are raised in parallel crooked lines every two yards. Each six yards these are crossed diagonally by larger ridges, and then every fifty yards is raised above the field what looks like a path, with a small embankment, but is really a water-course, running parallel with the first little ridges. Through these every morning the water is let in, and turned for a few minutes into each bed by the foot. Thus the whole receives a matutinal bath. The barley is sown before the ridges are raised, and the application of manure is unknown.

So rapid is the vegetation after rain, that, on returning on a Saturday to a field where I had watched the operation of sowing on the Wednesday, I found the barley had already shot an inch and a half. The

seed is sown in November, and the crop reaped in March. In summer no cereals can be cultivated, as the thermometer ranges to 113° Fahr. in the shade, yet the place is remarkably healthy, and free from fever or malaria. No wonder that the inhabitants of such a steaming basin are reputed apathetic, even among Arabs; yet from this reproach their indefatigable wives, with their ceaseless spinning and weaving, must be excepted.

There are several dependent oases near Laghouat. One day's ride was to Recheg on the banks of the Wed M'zi, a hungry spot with some fine tamarisks. In the opposite direction I visited Reg, where was a small forest of the betoum (*Pistachia terebinthus*), which supplies Laghouat with firewood. This tree the Arabs are at length beginning to plant wherever there are bushes of the "sedra" (*Zizyphus spina Christi*) to protect the young shoots from being browsed by the camels or gazelles. And with its recurved thorns an effectual protection this "wait-a-bit" is.

To the naturalist Laghouat is a most interesting district. The palm-groves are the resorts of thousands of migratory birds, which are busily employed in pecking at the dates, and keep up a chirping at times almost deafening. Here are the winter-quarters of many of our familiar English birds. The chiffchaff, willow-wren, and whitethroat hop on every twig in the gardens. The swallow and the window-martin thread the lanes and sport over the mouths of the wells in pursuit of the swarming mosquitoes. The hoopoe solemnly stalks on every dunghill, a cherished and respected guest. The white shrike perches motionless on the extremity of the palm-leaf; while a pair or more of the Egyptian turtle-dove nestle in the centre of the

tree, and a random shot will startle from under the dates a dozing "booma," or little owl.

I said above that the desert, as viewed from the heights of Laghouat, appeared interminable; but my rides to the dayats soon showed that even this has its varieties. If any reader has formed his idea of the Sahara from Turner's well-known picture, with its unbroken horizon-line on all sides, a dying camel in the foreground, and a vulture soaring aloft, the only objects to break its monotony, let him at once dispel the misty illusion. The *Dayat*, which is very frequent to the south of Laghouat, may be looked upon as an unimprovable oasis, where there is no constant supply of water to be found by boring, but where, from the configuration of the substratum of limestone, it being in fact depressed into something like a saucer, moisture gathers after the rare and uncertain thunderstorms. This moisture affords just sufficient support for a few terebinth-trees and wild jujubes, under whose shade a scanty herbage, intermingled with some desert plants, is browsed by troops of gazelles and a few antelopes. Here the golden eagle and the royal kite hold court and courtship, and carry on a perpetual but bloodless warfare with the raven; and the shrubs below are occupied by many warblers little known, and but rarely seen, by European naturalists.

On my first expedition to visit some dayats in the neighbourhood, the ground was quite brown, but after a fall of rain, an event which had not occurred for a twelvemonth, they were carpeted in three days with verdure, and a few Arabs were already hovering about with their flocks. We rode through some twenty of these desert islands, some of them only 200 yards in diameter, others a mile in length. Near them were numerous

88561

flocks of sandgrouse, already packed, and very wild and wary; and many desert larks of various little-known species. Among the thickets were other species of birds peculiar to the Sahara, and occasionally a desert hare or a ruffed bustard would be started. Towards evening long files of ravens might be seen returning to their desert roosting-places, gregarious and sociable as rooks in England, but cautious withal, as they would make a considerable détour to keep out of gunshot.

On one occasion, on emerging from a dayat, I suddenly came upon a troop of gazelle feeding, about 100 yards in front of me. Hastily dismounting, I shot one through the body, but, though instantly in the saddle again, and in hot pursuit, the poor wounded animal completely outstripped my Arab. Left far behind by his companions, he gained upon me, and, though I could detect the drops of blood in his track, I was at length compelled to discontinue the chase.

My horse played me the same day a most scurvy trick. He was so trained to stand when left alone, that I never thought of hobbling him; but having on my way homeward dismounted to pick up a bird, I beheld him trotting off, and, turning a deaf ear to all my entreaties, he kept a few yards ahead, while I had a weary trudge, with a gun and heavily-laden bag, for twelve miles into Laghouat. The brute certainly entered into the humour of a practical joke, for he would constantly turn round and wait till I got up to him, and then quietly quicken his pace.

The cliffs to the north are the favourite resort of the falcon and raven. These rocks are often rent perpendicularly in huge seams, the stratification being at the same time upheaved and exactly vertical. In places the white face of the precipice has the appearance of having

been pelted by lumps of black mud, which have adhered in irregular masses. These proved to be sometimes nodules of ironstone, but more generally masses of fossil shells embedded in a hard black stone, which we had much difficulty in breaking, and which is very different from the limestone in which it is found. This puddingstone kind of fossilization was quite new to me. While trying to break off specimens I observed a great commotion among the ravens, who were passing overhead with less than their usual caution. They were chasing a falcon, about a dozen to one, and repassed several times. The fugitive easily distanced them, and then, after the manner of a saucy boy, returned screaming within a short distance, to be again pursued. I was tempted at length to fire, and he fell dead at my feet. On examination he proved to be a male specimen of the extremely rare and scarcely known Barbary falcon (*Falco Punicus*).

In our rambles to examine the geology we were much indebted to the guidance of our kind host Captain Vinçon, who was engaged in repairing a dam which had been raised to throw back the water from the marsh to the oasis, but had been burst through by the unwonted rains. He was also working quarries of gypsum, among which were considerable layers of talc. This talc and sulphate of lime seem confined to the range south of Laghouat, where the dip of the strata is from south to north. On the other side of the basaltic dyke before alluded to, the dip is from north to south. The operations of the engineers are assisted by a squadron of fifty donkeys, taken in a razzia, and dignified by the nickname of "la Cavalerie du Génie Impérial." They are used in every possible way,—in tandem carts, with saddles, panniers, &c.,—and attended by a troop of Arab boys,

who receive 25 sous per diem. The chief of these lads is decorated with two chevrons on his burnous, and rated as "caporal des bourrikos."

Thus pleasantly passed our time at Laghouat with the intelligent and cultivated officers who formed its garrison. We were several times hospitably entertained by the commandant, in his handsome hall, lined and carpeted by the trophies of the chase, skins of lions, leopards, and ostriches, all slain by himself. The dinners also were in character, the courses consisting of gazelle, bustard, wild duck, wild boar, and starling pasty, winding up with huge bunches of dates and wooden bowls of kouskousou, served à l'Arabe, all of us eating from the same dish.

This kouskousou is the principal food of the natives, and when well cooked is both palatable and nourishing. Next to the tedious operation of grinding, the preparation of kouskousou is the chief employment of a Bedouin housewife. The barley or wheat meal is placed in a shallow bowl about two feet in diameter, a little water or milk is poured over it, and then it is rubbed with the palm of the hand into very small pellets, an operation occupying generally a couple of hours. The meal is then steamed gently for two or three hours, and forms the basis of the dish. The poorer sort are content to eat this with merely a little salt or sugar sprinkled over it, but those who can afford it mingle raisins, dates, or preserved apricots with capsicums, and over all pour a quantity of milk or rich broth. If the latter, the meat or fowl is laid on the top of the dish and morsels torn off by the guests, who sit round the bowl in a circle and feed themselves with their fingers. To eat kouskousou is a common Arab expression for a good feast.

Nothing afforded greater astonishment to the natives,

or amusement to the officers, than the experiment of an India-rubber boat with which we were provided, and which under the name of the "Marguerite" was first launched in the Lake of Laghouat by Captain Vinçon, with a pocket-handkerchief union-jack hoisted from his neck, making, as he remarked, the enterprising flag of England float proudly over the waters of North Africa. Even the commandant himself so far descended from his vice-regal dignity as to essay a nautical expedition, and expose himself to a humiliating shipwreck before his subjects.

The admiration of his soldiers for the character of Marguerite is only equalled by the awe of the natives, who believe him to bear a charmed life, and to be possessed of almost supernatural powers. With his eagle eye and piercing glance, he is a noble specimen of the self-reliant soldier, the very man to subdue and rule barbarians. On one occasion, when he was almost without troops, he discovered among a powerful tribe in the district a plot for his assassination, which had been arranged by the chiefs, and was to be carried into effect when they came to pay their imposts. A marabout or holy man had vowed to devote himself to the deed, and many others had bound themselves to follow him.

The commandant's decision was soon made. Alone and unattended, he rode some thirty miles to the Arab camp, dashed suddenly into the midst of their conference, and exclaimed, "You are plotting to take my life, but my hour has not come; yours has, and Allah calls you. In an instant he had pistolled the two principal conspirators, and, turning round to the others, said, "Your designs are all known to me, and, unless to-morrow morning you come to my camp and confess, your carcases also shall be food for dogs." Putting

spurs to his horse, he dashed from the midst of them, and before the astounded clansmen could recover from their panic he was out of sight. The next day the tribe presented themselves humbly before him, confessed the whole, and surrendered the ringleaders, who, with one exception, were pardoned on payment of a fine. Thus did Marguerite nip in the bud the scheme for a holy crusade, and the natives, who firmly believe that their plot was disclosed to him by revelation, have ever since exhibited the most unwavering fidelity.

We were gratified to find among the officers an appreciation of our English principles of Sunday observance, and a courtesy which led them not even to suggest any excursions on that day. Of the doctrines of the English Church they were utterly ignorant, and a French Bible and Prayer Book were willingly accepted and read and discussed with much interest. I have rarely found among educated French officers any belief in the doctrines of their church, but here, in two instances at least, there was a general reception of the great truths of Christianity apart from the peculiarities of Romanism, which had not degenerated into indifferentism or careless infidelity,—in fact, unconscious orthodoxy.

But as we began to prepare for our departure we found indeed "nulla rosa sine spinâ;" and the domestic service institution became a source of perpetual annoyance. We were about to travel in a country were Arabic was no longer the vernacular, and a trusty interpreter was absolutely requisite. Omar knew the Beni M'zab language, and his familiarity with French was most valuable in conveying to us information on the history and manners of the people among whom we might find ourselves. But Omar unfortunately knew his own value, and became more and more intolerable

every day. He absolutely refused to feed our horses, and spent his whole time in the Arab cafés. At length, on my remonstrating with him, he had given us notice to leave at once, which I unhesitatingly accepted, though not without misgivings as to the consequent shipwreck of all our plans. We began to make inquiries after a guide who could speak French, Arabic, and M'zab. In this we were zealously aided by M. Ismaïl, the interpreter of the Bureau, an intelligent well-educated Moor of Algiers, whose mother had been a French captive.

One evening M. Ismaïl enters our apartment with a look of triumph, leading a little round heavy-browed individual wrapped in a white burnous (whom I at once named Rhomboïd), and unfolds his tale. He is an ex-Spahi, he is M. Ismaïl's ex-orderly, and (mirabile dictu!) he can speak French after a fashion. Such an acquisition is not to be lost. Rhomboïd grins and affirms all to be true that can be said on his behalf, but, honest simplicity! can fix no wages. Omar soon after comes in in evident alarm, and, finding he is likely to be supplanted, tries to discover his successor. In this he is too successful, and our paragon returns late at night wonderfully enlightened, to tell us that no wages less than Omar's can serve his turn, and we are fain to capitulate at 100 fr. per month. The next day Omar returns all penitence and tears, and cajoles me, to my future misery, into taking him back as a second servant at reduced wages.

While we were preparing for our departure we received a formal visit from the Kadi of Berryan, a town of the Beni M'zab. He had just arrived on his way home from the pilgrimage to Mecca, in all the odour of sanctity. The commandant had asked him to wait here

for two days in order to accompany us, which he kindly consented to do. He was a fine dark-eyed, black-bearded man of about forty, with a pleasant smile, and with features that, but for his dark complexion, might be English. His type was certainly not Arab, rather between the Jew and the Anglo-Saxon. He somewhat alarmed us by the information that for four or five days we should find no water; and as we were to have two or three mounted guards, twelve camels and their drivers, besides ourselves, servants, and horses, to provide for, we should be compelled to invest a little fortune in goat-skins; but, as our visitor observed, water-skins are the best capital of the desert traveller.

The whole of our interview, which lasted an hour, was of course carried on by our interpreter Omar, while Achmed, our new man, assiduously served coffee with his shoes off. Our kadi, being a Beni M'zab, did not smoke. He paid us Oriental compliments on our visiting his poor country, to which I duly replied, placing my hand on my breast, that in meeting him the sun had at last risen on our path. After reiterated exhortations to bring water enough and to be ready to start at daybreak, the swarthy son of Moab majestically rose, and we salaamed each other in the doorway, I having unwittingly made the humiliating mistake of taking three steps beyond the carpet, and thus acknowledged him as a superior, a mistake of which the kadi did not fail subsequently to take advantage.

The next day the whole of Laghouat is hunted up by our emissaries for water-skins. Servants and the Arabs of the Bureau are alike employed. But all the world knows we are going and knows our need, consequently the market has risen upon us, and fabulous prices are demanded. The Kadi of Berryan frequently makes his

appearance, and impresses upon us the necessity of starting at 4 A.M. if we are by nightfall to reach a spot where there is wood. The golden shower pours as usual; our servants discover all sorts of things to be necessary for our outfit, and we discover that every possible and impossible article has been lost, broken, blunted, cracked, or worn since our departure from Medeah. Omar is heedless and bewildered, while Achmed is bustling and useful. Amidst our purchases I am fortunate enough to secure two pressing boards, and a two years' file of the 'Moniteur,' in lieu of botanical paper, for collecting plants. We dine at mess, where the farewell champagne is produced in our honour, and one of the officers returns to our quarters and has a long conversation on the doctrines of the English Church. We retire late to rest, convinced that our servants are blockheads and that we are only their very humble servants.

CHAPTER VII.

Departure from Laghouat — Early rising — Arab cavaliers — The Dayats — Birds of prey — Unsuccessful gazelle-hunt — The terebinth — Deborah's oak — Night camp in the Sahara — Desert graves — Achmed lost — Perils of the wastes — Vain search — A tipsy guard — Tilghremt — Troop of ostrich — The ostrich-hunt — Ostrich-eggs — Rocky Chebkha — A shower in the desert — Rivers from home — Sanguine hopes — A murdered caravan — Berryan.

AFTER a short doze we turn out at half-past 3, and rouse Omar, who as usual is deaf for a time to our adjurations. Loud is the clamour in removing canteens, boxes, and sacks into the street. At half-past 5 Captain Vinçon with his usual kindness comes in to offer aid, and remains till our departure. Still no camels. The sulky animals are somewhere in the outskirts of the town, so we patrol the streets and admire the sunrise through the palm-groves. About 7 the camels appear, and with their arrival comes the alarming discovery that our casks leak, that some of our skins have burst, and that others are oozy. Our "Mekhasni" (*i. e.* cavaliers, or armed guides), with red boots, and spurs some eight inches long attached to a species of mocassin over them, add to the confusion of camel-loading by riding and caracolling in every direction, except where wanted.

We find eight camels insufficient and obtain a ninth, but steadily refuse the application to engage a fourth "Sehaur" or camel-driver. By 8 o'clock the packing is all arranged, by the aid, I fear, of more Arabic oaths from our horsémen than are to be found in the Koran.

Three camels are charged with water, one with barley; one fine large animal bears my heavy canteens, and my great bird-skin case across their top, after some puzzling both of beasts and drivers. Our two tents, bedding, canteens, cooking utensils, sack of charcoal, ditto of biscuit, table, stools, &c., are quite enough for the remaining four. So after much ado the camels start from the "Place," followed by Omar mounted grinning and greasy on the top of our brown horse, who, now subdued, consents to carry the panniers which contain the requisites for our déjeûner. After him comes little Rhomboïd, the drollest of figures, a true Sancho Panza, height 5 feet, breadth ditto, astride his "bourriko," a very fine cream-coloured jackass, and buried in white burnous and huge red boots. Next our two cavaliers, capering about with long firelocks hung on the peaks of their Arab saddles, scimitars slipped under their girths, and chibouks on the other side, more likely to be used than the formidable-looking weapons opposite.

We linger behind a few minutes to sip our farewell cup of coffee with our kind hosts the engineer officers, at the Moorish café, where we are met by the sheik of the city and various other Arab notables. "Bon voyage!" "Bon retour chez vous!" "Salem, salem!" and we canter off, wend our way through the narrow mud-built streets, pass the palm-groves to the south, and, emerging by the old cemetery, have turned our backs on the last outpost of European civilisation in North Africa.

We found the camels had taken a more circuitous route while we were at coffee, but soon we saw them turning the corner of the palm oasis, and with them the sixteen camels and one ass of the Kadi of Berryan, our companion, who had not yet made his appearance. Our course was S.E. by compass. After two hours the kadi

appeared, mounted on a mare and accompanied by a poor relation also mounted. We halted for our noonday meal, and obtained a new species of lark, very like the horned shore lark of Sweden (*Otocoris bilopha*).

A hard stony desert alternated with rolling sandhills covered with scanty tufts of a sort of bent-grass. The dayats, or depressions in the desert with clumps of trees, became more frequent and agreeably relieved its monotony. We saw five magnificent golden eagles and two black kites soaring overhead together, the heads and beaks of the former glistening like molten silver in the sun, while their black-fringed wings assumed, as the light shone through them, a delicate reddish orange tint. Now we mounted to a vast level plain dotted with dayats, and roused innumerable troops of gazelle. Our principal mekhasni begged powder for his firelock, a weapon which, from its construction, might have been in use at the battle of Cressy, and then he spurred off on a little hunt of his own, from which he returned with a lame horse, an empty firelock, and a foolish face. Some gazelle meanwhile remained feeding quietly in a dayat almost within shot. We passed a solitary cairn to our left, close to the edge of a rocky ridge. It marked the spot where a caravan, on their way from the south and so near their home, perished of thirst some fifteen years since.

We camped for the night in a pretty dayat, under the shade of a noble terebinth, in shape and size like the tree under which Deborah was buried, and which is still pointed out to travellers in Palestine. The terebinth is a fine oak-like tree, with a close-grained hard black wood well fitted for cabinet-making; and, standing usually in solitary dignity, is the very spot a desert chief would select for a burying-place. Travellers

across the desert from Egypt to Palestine will recall the tree of this kind in the Little Desert, covered with pieces of cloth in memory of the dead, and appropriately named by the Arabs "the mother of rags."

The dayat was just now carpeted with green turf, and there were groups of prickly jujube-bushes. Sancho proved himself a good servant at camping, secured a dead tree for our watch-fire, and picketed our horses by the side of our tent. We fronted our camp-fire. On the other side the fire was our servants' tent, and round it were our various sacks, barrels, skins, and boxes. Beyond knelt the camels, growling and grunting with the most dissonant shrieks, and by them the watch-fire of our sehaurs. To the right was the camp of the kadi, with its two fires, picket, and circle of camels. We invited him to coffee, but he, a Hadj (pilgrim), just now redolent of sanctity, politely declined.

I got up once or twice in the night to admire the strange and picturesque grouping of our camp by starlight: our watch-fires dimly lighted up the party, and just revealed the crouching forms of the Bedouin, as buried in their browned and ragged burnouses they bent cross-legged, half waking, half sleeping, before the embers.

We rose at four o'clock. It was a dark, cloudless, nipping-cold morning, and I was fain to substitue hair-glove for sponge-bath, especially as we were on allowance. By six o'clock the tents were struck, and we sent the camels in advance before dawn. The hoar-frost was thick on the shrubs as we sipped our coffee, bridle in hand, and foot on the smouldering log. As soon as we were in the stirrup the sun rose to our left, touching the wide horizon with a flood of liquid fire. The gazelles were still more numerous than yesterday, and their

tracks marked the plain like sheep-walks. We passed four solitary stone-heaps—the graves of four wayfarers who had died of thirst—and reverently contributed a stone to the pile.

As we rode on, a fine golden eagle perched on the topmost branch of a terebinth attracted me, and, dismounting, I approached him within fifty yards. Watching his eye glaring at me with a piercing light, I took a shot with ball, but it passed behind him. He shook himself, dropped a few tail-feathers, and majestically and quietly sailed off. In the same dayat I saw for the first time the Arabian kite, with its finely streaked breast; I had also an opportunity of watching the habits of the sociable desert thrush (*Malurus Numidicus*), as they ran up the bushes after the fashion of a woodpecker, often assisting themselves by their beak. They are always in flocks, and with the exception of the sentinel bird, which perches at once on the top, the whole of them alight at the foot of a bush, run up it to the summit, and descend on the other side to halt again at the next shrub or tree.

When we drew rein for luncheon the kadi dismounted near us. The mode of his salutations amused us. He respectfully pressed his hand to his heart, and retained it there till we returned the compliment. Then his poor relation touched his forehead to us. This being the mark of recognition to an inferior, our man instantly forbad us to notice it; and so, after several ineffectual attempts to attract our observation, he saluted us as equals and we at once acknowledged him.

While P. and the cavaliers rested, I went on foot to a dayat at a little distance, in hopes of birds or plants, directing Omar to follow in an hour with my horse. I soon after observed little Sancho going

off on his ass, and, looking at my compass, noticed he was riding south-west. But as I had heard him say at luncheon that he knew all the landmarks in this part of the route, I thought no more of it. Soon after, a mekhasni rode up with my horse; I mounted, and in a long ride we saw nothing save a pack of sandgrouse which rose wildly out of shot, and the head and horns of an old ram which had afforded a feast to the eagles, whose traces were about him. Still a few shady dayats broke from time to time the monotony of the scene.

The sun was getting low, when in a sandy hollow we saw our whole party with the kadi standing in a group. Such a conclave was an ill omen. What could it bode? At a distance one of our cavaliers waved the corner of his burnous; then coming up, "Mackansh Achmed," "Achmed is lost," he exclaimed, and off he spurred. So did the kadi. In an hour they returned. No traces of him could be seen. We camped at once at the nearest dayat, and despatched our two mekhasni, one of them on the fresh baggage-horse, giving them the clue of my last glimpse of the little fellow riding too much to the westward. I saw the gravity of the party, but scarcely realized the fearful peril and the hopeless bewilderment of a man lost in the desert, till P. broke the silence by exclaiming, "Nothing but the Providence of God can save him now!" While pitching our tents, some incautious gazelle approached so near as to give P. an opportunity with ball to procure venison. Omar, roused to an exceptional energy, actually made all preparations for supper.

Late at night, guided by our beacon fire, the horsemen returned, but with no trace of Achmed. We gave them a little kirsch, which one of them drank and became intoxicated with a wineglassful. He lay

by our tent bewailing his poverty—"Mackansh barouht, mackansh doohk'rahn, mackansh everything" (no powder, no tobacco, no nothing)—and wound up with a laugh, ill-according with our anxiety for our poor lost servant, perhaps at that very moment in all the misery of thirst and hopeless perplexity. But we could do nothing for him. Our only hope was, that he might have had the presence of mind to return to Laghouat by a route he knew, or that, if he kept on westward, instead of south-west, he might have fallen in with some Arabs pasturing near the dayats. The great fear was, lest he should wander in a circle. For some hours we stood speculating before the watch-fires, while our attendants joined in the conference, crouching round the charred wood, feet inwards, and chibouk in hand. We resolved on sending one of our cavaliers again in search, but, as our water would not hold out, we must meanwhile proceed to Berryan.

Before daybreak next morning the horseman started, with directions to commence at the spot where we had halted and thence follow any traces. We also gave him a letter for Laghouat, in case Achmed should have taken a northerly course. He was supplied with some bread, a little sack of barley, and a small skin of water attached to his saddle-peak. We rode on southwards; the dayats being fewer in number, but much larger, than those we had hitherto met with. The country was something like an American prairie stripped bare and macadamized. About ten o'clock we were told we saw six ostriches, and after using our telescopes made them out, but at a great distance. Our mekhasni of course galloped wildly in pursuit, but unsuccessful as usual, returned in an hour or two.

We traversed the fine day at of Souabin, and then an

hour's hard riding brought us to Tilghremt, the largest and last of the dayats on our route. Here we determined to halt for two or three hours, while the camels passed on to find a night's resting-place. We had ascertained that we could easily remain for three hours at noon, and yet come up with the convoy, who never halted from morning till evening, in time to assist in pitching the camp, usually deputing to our sehaurs the selection of a convenient spot.

The French have attempted to find water at Tilghremt, and their dry well and unfinished buildings remain as monuments of good intentions in the desert.

The kadi and his poor relation were urgent that we should postpone breakfast, and join in another ostrich-hunt, as we could now see the birds stalking about at the distance of a mile or more, though incredulous P. maintained they were only a mirage of walking trees. Unwilling to risk our horses, and knowing the hopelessness of the pursuit, we remained quietly behind, to the benefit doubtless of our poor thirsty steeds, while the rest of the party galloped eagerly off. There is something irresistible to the nomad in the charm of an ostrich-hunt; and often as the exhausted horses had suffered in the vain pursuit, it was impossible ever to hold in our servants, when the alarm was given, from scampering wildly over the plains.

The capture of the ostrich is the greatest feat of hunting to which the Saharan sportsman aspires, and in richness of booty it ranks next to the plunder of a caravan. But such prizes are not to be obtained without cost and toil, and it is generally estimated that the capture of an ostrich must be at the sacrifice of the life of a horse or two. So wary is the bird, and so vast are the plains over which it roams, that no ambuscades or

artifices can be employed, and the vulgar resource of dogged perseverance is the only mode of pursuit. The horses undergo a long and painful training; abstinence from water as much as possible, and a diet of dry dates, being considered the best means for strengthening their wind. The hunters of the tribes to the east of the M'zab set forth with small skins of water strapped under their horses' bellies, and a scanty allowance of food for four or five days distributed judiciously about their saddles.

The North-African ostrich, less gregarious than that of the Cape, probably from the comparative scarcity of food, generally lives in companies of from four to six individuals, which do not appear to be in the habit, under ordinary circumstances, of wandering more than twenty or thirty miles from their head-quarters. As soon as they are descried, two or three of the hunters follow the herd at a gentle gallop, endeavouring only to keep the birds in sight, without alarming them or driving them at full speed, when they would soon be lost to view. The rest of the pursuers leisurely proceed in a direction at right angles to the course the ostriches have taken, knowing by experience their habit of running in a circle. Posted on the best look-out they can find, they await for hours the anticipated route of the game, calculating upon intersecting their path. If fortunate enough to detect them, the relay sets upon the now fatigued flock, and frequently succeeds in running down one or more, though some of their horses usually fall exhausted in the pursuit. The bird, when overtaken, offers no resistance beyond kicking out sideways. A skin in full plumage is worth on the spot from 40 to 100 Spanish dollars, but the Arabs are in the habit of judiciously thinning the feathers, so that the trader

can rarely obtain a specimen on which this tax has not been previously paid.

Once, and once only, had I the good fortune to take an ostrich's nest, though fresh eggs were not unfrequently brought in by the Arabs. It was some months subsequent to this occasion, when we observed with our telescopes two birds standing for some time in the same spot, and were induced to ride towards them. They rapidly scudded off, but on intersecting their track we turned back and retraced it instead of continuing a vain pursuit. An ostrich's track is by no means easy either to follow or to retrace, for his stride measures at full speed from twenty-two to twenty-eight feet; and the oblong impression of two toes at such wide intervals affords no very evident "spoor" to any eyes less expert than those of a Bedouin huntsman. We retraced the impressions to the spot where we had seen the birds standing together, and where the sand was well trodden down. Two Arabs, at once dismounting, began to dig with their hands, and presently brought up four fine fresh eggs from a depth of about a foot under the warm sand. They are excellent eating, and cannot be distinguished from hen's eggs in flavour. Ostrich-egg omelet we always found a most welcome addition to our desert bill of fare, and a convenient and portable provision, for from the thickness of the shell the eggs keep perfectly sweet and fresh for a fortnight or three weeks.

Neither eggs nor birds were to be procured this time, though P. and I found ourselves deserted in the dayat by the whole party, and left to cook our meal from Omar's forsaken pannier as best we might. But wood was plentiful, and of course dry, and our rice, saffron, and bacon were soon boiled. (By the way, let

me counsel any intending desert-traveller never to omit a supply of saffron. It is the most concentrated of condiments, and is a grateful addition to fried, boiled, or stewed.) The dayat was full of stock-doves in their winter quarters, which were feeding on the terebinth-trees, and four of them, shot and plucked on the spot, were a liberal supplement to our dinner. While watching for them I was delighted to observe through the thickets three gazelles, a pair and their fawn, feeding, unconscious of my presence, but in perfect safety, as I had no more deadly ammunition with me than small shot. The young one was not larger than the little Ceylon antelope, with budding horns, and sportive as a lamb, while neither parent seemed to think it undignified to reciprocate its gambols. These gazelles (*G. Corinna*) were very choice in their pasturage, and, rejecting the more juicy herbage, were feeding only on a species of statice.

At length, having detected our cavaliers making signs to us on the brow of a rising ground far ahead, we saddled and bid farewell to dayats. We followed the bed of the Wed Settafa, but, like most African rivers, the Settafa was not at home.

And now there was a sudden change in the scenery. We were in the "Chebkha," or network of the Beni M'zab, and a true network it is, of naked, sharp, rocky hills, apparently running in ranges at right angles to each other, and enclosing square, round, or oblong basins between them, as naked and barren as the network itself,—not a tree, not a leaf, not a shrub. Our horses carefully picked their way among the slippery crags, happily without losing a shoe. We overtook our caravan beginning to camp for the night under a tall cliff amidst the sand. Near us were a small party of

Bedouin, of a tribe dependent on the M'zab, whose lean flocks find some herbage at the foot of the Chebkha, and of whom our companion the kadi bought a sheep and politely sent us a leg of mutton for supper.

These Arabs were the first we had encountered since our departure from Laghouat, with the exception of four weary wayfarers the day before, who, each with a water-skin on his back, were walking to the Tell. Hardly had we pitched our tent when it began to rain—a very slight shower certainly, but a wondrous event here. Presently our tent was inundated by huge black beetles, evoked, I presume, by the unwonted moisture. Of these I secured a plentiful supply for my insect-box, and had the satisfaction of afterwards ascertaining that I had discovered a new species of "baps."

We had just turned in about 9 o'clock when our mekhasni, guided by our camp-fire, arrived at our tent. He had traced the footmarks of Achmed's ass from the place were we had lunched, proceeding in a south-westerly direction. At one place the poor fellow had rested, and left the remains of a cigarette, which the cavalier produced. It was evident from the distance he had travelled that he had pursued his journey. all night without sleeping. He was traced to the dayat of Souabin, so that he had not been far from us, but there. the rocky nature of the soil and the approach of night had precluded further pursuit, and our horseman, knowing that he himself must be now on our track, had pressed onwards towards Berryan, lest he should share the same fate.

Our best hope was that Achmed might have fallen in with the Arabs we had met; and the rain, which was still descending, though in scanty drops, consoled us with the thought, that if the shower reached

him he might be saved. Still more sanguine were we, when about midnight the waters poured down for an hour in heavy torrents, and led us to speculate on our own pleasant predicament in case the river from home for the season, in whose bed we had pitched, should take it into his head to return from the hills. But the clouds soon took up; though the morning was misty and raw. The sun dissipated the haze, for the humours of the luminary are for the most part dry in this latitude. However, we found some water-pools most grateful to our horses, who had been on short commons for two days and were eager for the limpid (?) mud. My little "Gazelle" became quite frisky, if not intoxicated, and passed the day in the highest spirits.

We had during the morning an exemplification of the sturdy obstinacy of the camel. Two of those belonging to the kadi had strayed in the night, and the others were overloaded in consequence. We overtook one of them, who had lain down on the rocks and refused to stir, though appealed to by the indefatigable cudgelling of two men on his most tender parts. One of our cavaliers promptly rode up, took off a bundle of no great weight, and, placing it before him on the peak of his saddle, spurred on to one of our now unloaded water-camels. Instantly the recusant animal jumped up and pushed on with a swinging gait to overtake the convoy.

We now began to leave the Chebkha, and entered the course of the Wed Soudan, out of bed as usual. Here we found a clump of terebinths, under which we dined, close to a row of large heaps of stones marking the graves of a caravan which was robbed and murdered five years since by the Chaamba. In the afternoon we again passed four stone-heaps, and apart from them a

fifth. Four men and a woman, travellers of the M'zab, had lain down in that spot and died of thirst: two hours more would have brought them to Berryan.

We were somewhat surprised to put up among the brushwood of the ravine a covey of Barbary partridge, the first we had found since we left the Tell, and were fortunate enough speedily to secure our dinner. We then entered a valley of loose stones between two ranges of honeycombed hills inhabited by various species of desert marmots and jerboas, and soon we welcomed on the top of one of the peaks a whitewashed marabout, the tomb of a Mussulman saint, Sidi Selama, and the landmark which told us we were close upon Berryan.

CHAPTER VIII.

Sudden view of Berryan — Strange contrast — Imposing procession — The reception by the Parliament — The Kadi in full dress — A state dinner — Hospitality by taxation — Early callers — A travelled Mozabite — Arab tribe — Primitive loom — An auction — Traditions of the M'zab — Moab and Ammon — Spanish traveller — Saharan sewerage — Dove-shooting — Cultivation of gardens — Novel wells — Ploughs — Forbidden sweets — Degenerate kouskousou — An exigéant Dragoman — The Kadi's farewell.

THE first glimpse of Berryan is almost startling. On each side of the ravine up which we rode was an empty watercourse, built up of unmortared stone, and showing that the constructors had contemplated the possibility of rain even here. On turning the shoulder of a hill to our left, up started a palm-grove straight before us, fenced with dry stone walls, which were protected by prickly shrubs at the top. The glaring white cliffs on either side, and the deep green feathery foliage of the palm, combined to render the scene more like the background of a stage than the palm-garden of sober cultivation. We turned the corner of the plantation, and descended into a narrow lane. On the left the date-palms were in full luxuriance, on the right was the sterile mountain range, till, stern nature yielding to patient toil, the groves skirted the road on either side.

Now we entered an open space, with low black Arab tents, gaunt camels, and yelping pariah dogs. High perched above, a white sepulchre glared conspicuously. The town soon opened on the hill-side, consisting of

flat-roofed, mud-plastered, windowless edifices, many of them with brown-looking arcades on the first floor. On the summit of the hill culminated the Semaâr or mosque, with a great quadrangular tower, like an immense factory chimney, brought abruptly to a point.

We passed a cemetery to the left, sloping to the ravine like that on the banks of the Kedron at Jerusalem, and then entered a narrow gateway, for the city is fortified by a dry stone wall plastered with mud, and defended by square towers, now crumbling to decay. The narrow streets were lined by white-burnoused natives sitting on the ground in long rows, all gazing and some saluting as we passed.

We had attempted to invest our entry with somewhat of state, all guns unslung, our cavaliers in front, and Omar behind us preceding the camels who brought up the rear. In this order we rode directly to the market-place, the "Grand Place" of Berryan. In the square a dignitary with a huge wooden key encountered us, to whom our foremost cavalier presented our letter of commendation, this, however, being a mere form, as the kadi had preceded us by a few hours and proclaimed our approach. After some discussion with our guides, the official made us wheel round again and enter a narrow street.

When we had dismounted, a low door led us into a narrow passage, and this into a small open court, on three sides surrounded by pillared arches mud-built like the rest, while the fourth side was a heap of ruins. Above, there was a second story, similar in its arrangements to that below. We mounted by a crumbling staircase, obstructed at the top by a low

and most unnecessary door. The clay floor yielded under our feet, for the beams were but split palm-trees, and the laths the ribs of palm-leaves. This was the guest-house of the city. Several Berryans ascended with us. After long fumbling with the massive key a door was opened, and we were shown two low-arched rooms opening into each other, without any window, their roof supported by squared palm-tree pillars, dismal and mouldy, and earth dropping from the top. Our goods were hauled upstairs, not without remonstrance on our part, owing to the rickety condition of the upper story. We took possession of the two chambers, while our horses were picketed in the court below.

A fine intelligent-looking lad voluntered his assistance to arrange our canteens and bedding, and proudly poured forth the half-dozen French words he had picked up, which made him a wonder to his fellows. A sun-dried unveiled female prepared the chamber, while a merry-looking damsel, white draped, but showing her red painted face and long red boots, eyed us from below, having evidently taken the red-legged partridge as her model of adornment.

After a time our quondam companion, the kadi's poor relation, now washed and combed, made his appearance. Then arrived the kadi himself, profuse in hospitable expressions. Our carpet was spread in the verandah, and a negro bore on his shoulders a huge bunch of dates, which he laid in the centre of it. When we had partaken, our six attendants, cautiously approaching the carpet's edge, helped themselves with avidity. The official with the great key, whom we now discovered to be the secretary of the Djemmâa or

Parliament, presided over the proceeding, and took a whiff of our proffered pipes.

After an hour we were waited on in state by the kadi and some members of the Djemmâa. What a transformation! Our shabby-looking friend appeared in a full-puff turban of white muslin in loose folds, burnous of the finest material, snowy garments, washed and perfumed body beneath them, and embroidered red slippers, which he dropped at the door. He and his five confrères were seated on our beds, and we acted our several parts: P. did deportment, Omar the talking, and I brewed the tea.

While this was preparing, business followed the officials: a crowd of litigants blocked up the doorway; a case was tried in due form; the claimants clamoured and gesticulated, judgment was speedily delivered, and they retired. The chief, with his black eye sparkling under his shaggy brow, his black beard and deeply bronzed features, looked the kadi from head to foot. In compliment to us the hadj drank tea, though telling us it was against his conscience; and, bidding us call for whatever we might want, departed.

Our horses were soon supplied with barley, and we sat down before a bowl of half-warm kouskousou, about two feet in diameter, and, despising Arab etiquette, dipped with our spoons instead of fingers. Our six attendants were to eat after us. In our simplicity we imagined that the dish was very good; but Omar ominously demurred,—it was not "première qualité" —we were not treated with proper respect. Even dates and pomegranates could not assuage him. Our cavaliers were even more indignant. They scolded the members of the Djemmâa who came to inquire

after our digestion, and to whom, to our relief, we were denied.

It was afterwards explained to us that we were the guests of the state, as are all strangers who visit their country. The mode of entertainment is as follows. Every householder is expected to contribute in turn, according to the rate-book kept by the secretary. The negro servant of the Djemmâa goes round to all in rotation on any new arrival, directing one to provide a dish of kouskousou, another dates and pomegranates, another ghee and milk, another barley and fodder for the horses. No wonder that under such a system we experienced considerable variety in the style of dishes and quality of the cookery, according to the wealth or munificence of our entertainers, or the culinary skill of their ladies.

The next day was Sunday, and I had hardly debouched from my sheepskin, and arrayed myself in white shirt and tie and black waistcoat, unwonted luxuries, when the whole Sanhedrim arrived to inquire after our health, and to taste our coffee. Although against their creed and their consciences, all, excepting our holy friend the Kadi Hadj, indulged without scruple. His scruples only vanished when his compeers were out of sight. P. remarked they were all men of short conscience, as a coffee-cup would drown the tallest of the lot. One grave and reverend senior had travelled to Algiers and picked up a little French, and also, as he told us, a little "argent" by peddling in corn and letting out asses for the French government works.

We had much difficulty in explaining to our hosts that this was our sacred day, and that we wished to be left quietly to ourselves, their only idea of a

holy day being of feasting and "fantasias." By 9 o'clock we got rid of them and breakfasted on dates and brown unleavened bread baked with ghee (rancid butter) and pepper. We were glad to learn that the kadi had this morning sent men in search of Achmed, as previously arranged, with a letter from me to Laghouat, in case they should not hear tidings of him sooner.

The next morning I went out at daybreak and climbed to the top of a hill, to have a good view of Berryan. The economical genius of the people is shown in their selection of a site. Land is too valuable for them to plant a house where a date-tree could be induced to live, and consequently the city is placed on the steep side of a bare rock, behind which is the ravine of the Wed Ballouh, in which they have carefully collected artificial soil for their gardens. The town is square, and its wall is strengthened by four towers on each side, a true specimen of ancient fortification. These are stone-built, plastered with mud-coloured lime, and contracting to the top, with crumbling battlements and a few wide loopholes. There is nothing to vary the brown monotony of the flat-roofed houses, except a few arched arcades on the tops of the better residences, and the huge ungainly mosque-tower crowning the whole. Conspicuous are two whited sepulchres of saints on the heights behind, with a pair of ravens perched on each, reminding one of the tomb of the old prophet at Bethel, which Josiah lifted up his eyes and beheld.

On each side of the town is a cemetery separating it from the palm-groves, and below the burial-places are the open spaces where the Arabs of the dependent tribes encamp. Between them and the M'zab there is nevertheless a bitter feud, and they are not allowed to enter the gates except on market-days. In former

times blood was often shed in their quarrels, and it is only the fear of affording an excuse for French interference which has for some years preserved a sullen truce between the two races.

Descending from my elevation, I went down to one of the cemeteries, and had a fine view of the palm-gardens which opened out behind the shoulder of the hill, in startling contrast to all around. The cemetery was only a mass of quarry-stone, each grave being literally cut out of the rock, and adorned with a ridge of broken pottery. The urns and jars were all of the coarsest ware, but of varied and elegant shapes, many of them reminding us of the forms of Egyptian and Etruscan vases.

We then proceeded to make the acquaintance of some of the Arabs below. The men were in groups on the ground, while at the door of each tent sat the women busily engaged in weaving tent-coverings with their simple looms. They used no shuttle, passing the threads through with their fingers, and then pressing them down with a heavily-weighted species of comb. They were unveiled, and did not seem to object to the presence of the strangers. These Arabs are a tribe that left Laghouat at its capture by the French, and are all nomads, but, rather than own the French sway, have attached themselves to the Beni M'zab heretics, paying them a tribute for the liberty of their markets, but remaining perfectly distinct from them in religion, customs, and habits.

Returning through the city we met, at his own door, the kadi's poor relation, who insisted on our receiving a dole of dates and pomegranates, which we, mendicant-

like, gratefully accepted and bore home in our wallets. In passing through the market-square we found it lined with a triple row of squatters; and public criers, distinguished, as licensed hawkers, by badges and Arabic inscriptions on their burnouses, walking up and down, putting up carpets, old tarbooshes, and other et-ceteras, at Dutch auction. Our circle of friends had by this time wonderfully increased, and we had to touch hands and then kiss our fingers with sundry polite acquaintances.

We had scarcely finished dinner before five of the djemmâa entered, self-invited to tea. I began to grudge the sugar, which was getting low, and could not be replenished in the desert. But tea is a luxury unknown, except by name, to the M'zabs, and also a forbidden beverage, and we owed some return for our daily barley and kouskousou. While they sat round on the carpet, Omar stood at the door, and through him I began judiciously to catechize our visitors on their origin and history. They disclaimed all acquaintance with Moab or Lot, to whom the Jews refer them, but were "Beni Ibraïm," sons of Abraham. Their nation came hither from Morocco, whither they had immigrated from Egypt, or the south of it. But their Imaums knew all their story, and it is written in their sacred books, which are preserved in MSS. at Ghardaïa, the capital. They were very positive that they were not Arabs, and stated there was a large tribe, the Beni Ammam (query, Ammon?), on the coast of Africa, opposite the straits of Bab el Mandeb, with whom they were distantly related, but how many centuries back they could not say. We were the first tourists, except the French flying column two years since, who had ever visited their country openly. But they told of a dervish who came here in

their fathers' days, and craved charity. He was hospitably entertained, till one night they detected him writing under his arm, and, discovering him to be a Spaniard in disguise, at once drove him out into the desert.

They seemed not a little anxious to know whether, now that they had acknowledged the supremacy of the French, they were likely to have many visitors; and, inquisitive in their turn, asked me many questions about the relative populations and extent of Russia, France, and England. They were most interested in what they had heard of London, its being two days' journey in extent, &c., and made many pertinent observations on its population and municipal government. But chiefly they were curious to understand how it could be supplied with water, and how its sewerage could be carried away and saved. Here we might take a hint from them. All their arrangements for these matters are extremely cleanly and systematic, no refuse or manure being allowed to remain in the town, and Mr. Mechi would find nothing lacking in their agricultural economy.

The next day we set out early on a naturalizing and shooting expedition in the palm-groves, where we were heartily welcomed by the gardeners, but furiously attacked by their dogs. The trees swarmed with the Egyptian turtle-dove, as little loved, in spite of its beauty and gentleness, by the M'zabs, as the cushat is by farmers at home. We were attended in our peregrination by a posse comitatus of wondering boys, who assiduously pointed out the doves, and at each shot exclaimed, "Fantasia bezzaf." The gun is little known in these peaceful oases, for the mercantile M'zab are the only race in the Sahara who do not habitually carry arms, and among whom we never thought of girding on

our revolvers. The long firelock, so universal elsewhere, we never saw, excepting when carried by some traveller just arriving from the desert.

We soon obtained eighteen brace of doves, which were evidently strangers to the report of a fowling-piece. Fat and plump with dates and barley, they were delicious eating; and we were not less pleased thus to diversify our monotonous kouskousou, than were the cultivators to see the ranks of their depredators thinned. There were many ravens about, and a few kestrels, with numbers of warblers from Europe, enjoying their peaceful winter quarters, but no larger game. I noticed only three butterflies, and those our home sorts—the little turnip-white, the painted lady, and red admiral. Probably the more southern species only make their appearance later in the season.

The cultivation in these groves or gardens was excellent, far superior to that of Laghouat. The soil was all artificial—every sort of manure carefully husbanded, then spread and watered well before being ploughed in; and after the surface had been raked, the seed was sown in drills. Round the root of each palm was a hollow trench to hold water, and the land was laid in patches for cultivation, as in Egypt, with little miniature watercourses in every direction, dividing it into rectilinear figures of about a yard square. These watercourses were fed by neat channels of about four inches in depth and diameter, beautifully formed of hard lime, and branching in all directions from the well, so that the precious fluid could be conveyed without the slightest waste through the grounds.

Each garden is daily watered, and planted in every possible space. As at Laghouat, vines are trellised from palm to palm; fig-trees, quinces, and pomegranates add

their paler green to the dark wavy trees above them; while capsicums, pumpkins, carrots, turnips, and barley occupy the surface. The plough is as primitive as that before described, the camel being led by one boy and driven by another. The difficulty of the head ridges is met by backing the plough and then starting from the wall to meet the old furrow.

But the machine for drawing water from the well is both original and ingenious. There is a double pulley, and a large leathern bucket slung by the pulleys across the beam. The water-drawer holds two ropes, one of which hoists up the bucket, which has a leathern funnel at the end of it, to which the second rope running on the other pulley is attached. This second rope, when the bucket reaches the top, turns the tube into the cistern, on the same principle which we see adopted in some English mines. There is always a sloping road-way—a deep inclined plane—cut out in the garden for the water-drawer to run down, who is thus materially assisted in his draught. In many gardens we saw a boy and an ass, or a mule and a camel, generally the latter, so employed.

These gardens supply the principal portion of the food of the inhabitants, with the addition of barley-bread. Wheat is almost unknown amongst them. Barley-meal, boiled with carrots, turnips, and dates, is the staple dish of every family, flesh-meat being confined to festivals.

As we were returning home, a Jew politely accosted us, and offered us a taste of the dates he was carrying. They were tightly pressed down in a skin bag and steeped in some spirit, and were indeed delicious. It is only the Jews who thus conserve them, for all distilled and fermented liquors are rigorously prohibited, and even

the Israelites, if discovered, are liable to be severely bastinadoed, and to have their sweetmeat confiscated. True to the instincts of his race, having thus conciliated our good will, our friend, with a very knowing look, pulled out a carefully-tied patch from some corner of his dress, and, producing some old coins of no great value (late Roman denarii), solicited us to purchase at an extravagant rate.

The kouskousou of the M'zab fluctuates like the funds of Great Britain. To-day it had fallen again in quality. There was evidently depression in prosperity. Its quantity and quality are, moreover, the measure of the honour awarded to the stranger, so through Omar we made complaint of the want of respect shown us, and were deluged with apologies from the whole Senate, who returned, one with a pot of rancid butter, another with a bunch of dates, and a third with two hot cakes, as peace offerings. But their apologies and plea of poverty did not assuage the menaces of our cavaliers, who declared they would complain at Laghouat of the way in which the "bons alliés" of the French were treated, and bring a flying column down on the devoted city. The whole body of the elders were almost on their knees to these two wild Arab horsemen. So much for being under the protection of the Suzerain power. To calm their alarms we announced our intention of departing in two days; doubtless somewhat to the relief of our thrifty entertainers.

After another day's ramble we found substantial preparations for our journey, rather owing, it is to be feared, to the threats of our mekhasni than to the spirit of hospitality, on which we had already too largely drawn. Various members of the djemmâa were awaiting our return, but as soon as salutations had passed, after a

short dialogue with Omar, they retired, and we ascertained to our annoyance that he had uncourteously informed them there would be no coffee this evening. Omar apologised for his rudeness by telling us he had been refused water by one, and bread by all; and no wonder, when he confessed to having demanded twenty barley-cakes, eight measures of barley, and all sorts of provision for our journey, on the avowed principle that the larger our demands the greater would be our consequence, and that, if a traveller wished to be respected, he must proudly call for everything without offering payment. But the kouskousou was most savoury and of the whitest flour, and while we were discussing it our old friend the Kadi Hadj came in robed in his best, and was profuse in his apologies for the barbarism of his townsmen, who, not having travelled as he had, had no idea of the proper way in which a stranger from a civilized country should be received. Now, on the eve of our departure, he urgently pressed us to stay a month, and, doubtless, when he sees our horses' tails to-morrow outside the gates, the month will distend itself into a year, if not for ever.

The next morning, dates, bags of corn, ghee, and flat barley-cakes, came pouring in, and our kadi, who stood by, confidentially expressed to Omar his hope that we were really going. Having distributed our score of parting gifts, too generally, I fear, by the instigation of our interpreter, proportioned rather to the rank than to the services of the recipient, we moved about noon—the imposing procession of camels, drivers, and horsemen creating no little sensation as they paraded along the narrow streets. The kadi on foot, with two huge keys in his hand, preceded us till we were about 100 yards outside the walls, when with repeated expressions of

regret, and much touching of hands and kissing of fingers, he gracefully pressed his hand to his heart and returned.

We passed up the dry ravine of the Wed Ballouh, were soon in the rocky Chebkha again on our two days' march to Ghardaïa, and camped just before sunset in a spot where we could gather a few desert herbs and camels' dung for fuel to cook our doves.

CHAPTER IX.

A narrow escape — A suspiciously-faithful guard — Omar on theology — Future of Islam — Frost in the desert — A morning scene by our camp-fire — View of Ghardaïa — Street scene — The guest-house — Political system of the Beni M'zab — Unpaid officials — Zickar, or wedding-dance — A deserted city — The Wed M'zab — Gardens — Commemoration of founders — A funeral feast — Largesse — Spirit-licence — Maine liquor-law — Value of coffee and tea — The lost found — Return of Achmed — My ratcatcher — Lizards and mice — Jewish jewellers — Markets — Manufactures — Tannin — Dyes — Caravans — M'zab toilet — Slavery.

I HAD a very narrow escape during our ride. Having seen traces of gazelle on the left, I had ridden off in pursuit, accompanied by our younger cavalier. Far out of sight of our caravan, we were riding on a plain in full stride, upon the track of the game, when I felt the pinge of a ball past my eyes, and with it heard the report of my companion's gun. Turning sharply round, I saw him in the act of taking down his piece from his shoulder, and, rushing upon him, asked what he meant. He coolly replied that he was firing at the gazelle, which, however, were ahead instead of abreast, and, on my remarking this, pretended he had done it in sport. Drawing my revolver, I begged him to give me the flint from his gun, as he was not fit to be trusted with it; and he reluctantly surrendered. I never was able to ascertain his object, or whether he really did intend to murder me, and then ride off with my double-barrel and revolver to his tribe, who were only two or three days to the south of us; but though I learnt a lesson of caution, and never again trusted myself with him alone, the man proved a faithful guard for weeks afterwards, and in times

of great danger willingly exposed himself when he might easily have avoided all risk. My belief now is, that it was an intentional act, but not premeditated, the sudden opportunity having proved too strong for his impulsive Arab nature; and that he sought by subsequent fidelity to efface the bad impression from my mind.

This circumstance had agitated me too much for early slumber, so, sitting over the embers at the tent door, I had a long conversation with Omar, in the still starlight night, on religion and politics. He made no secret of his sanguine hope that the French would never take Kabylie, and indignantly asked what business they had there, seeing that the Kabyles had done them no harm, were content to trade, and had never acknowledged the supremacy of the Dey of Algiers.

As for religion, he had been two years a servant in Italy, in the family of a Roman princess, and had seen enough of Romanism. He would as lief be a heathen, far sooner a Jew. He had been told, by an English gentleman with whom he had travelled, of our religion, which he knew was not idolatrous, and next best to his own. He bewailed the fact that Islam was growing weak, but it was not yet finished. If it had not been true, how could Providence have permitted it to gain back so much ground that once was Christian. Man had outgrown the mission of Jesus, and therefore it had been superseded by that of the Prophet, as in its time it had superseded Moses. For the rest, he was not a learned man, and believed what the Imaums taught him; for though the Arabs might lie, their wise men did not, and no Moslem could lie like a Frank.

He had met at Constantinople a Hindoo Mussulman, who had told him how the English reverenced the

Moslems—how they gave way to their faith, and preferred them above all others for officers and soldiers. Therefore there could not be much difference between us, or we should have destroyed their religion when we had the power.

He inveighed bitterly against the Beni M'zab, who he said were worse than the Jews, and were so detested that our kadi could not have made the pilgrimage to the holy places, except in the disguise of an Arab; for if any of the Khramsine were found at Mecca, they would be cut to pieces, and their bodies burnt—as they went only to mock at the shrine of the Prophet. Yet he could not tell me the points of difference. They were Khramsine, fifth sect, that was enough for him. Poor fellow! his moral sense was as perverted as his appetites were depraved, and nothing but Divine teaching could open his heart to the true nature of sin.

I had but short slumbers, for P., always the first to bed and first to rise, startled me long before daybreak by the application to my cheek of a piece of ice found in our basin outside the tent. It was the first frost we had encountered since Djelfa, and the last.

Dreary and bitter is an early morning rouse in the desert. We persevered, however, in the endurance of a cold sponge al fresco, after which we stood over a smouldering fire of weeds, to sip our coffee and smoke our pipes. Omar sat torpid on a canteen. All was silent and dark around us, save the glimmer of an Arab camp-fire not far off. At length the wail of a hyæna in the distance broke the stillness. Omar grunted out, "Dhebaâ," and nodded again. By six o'clock the camp began to come to life. One mekhasni extended himself at Omar's tent-door, yawned, stumbled to the fire, and roasted his shins. A camel-driver was unkennelled from among

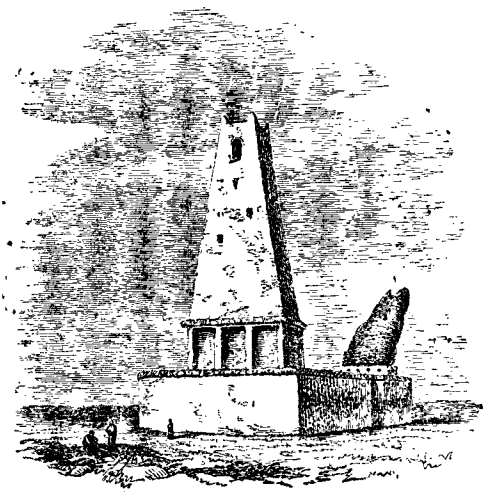
the baggage. He rose, groaned, shook his burnous to ventilate the fleas, and his toilet was completed for the day. Gradually the other members of our caravan came and surrounded the fire. The second cavalier promenaded for a while on the chief guide's back, to cure him of lumbago, and the camels were laden before he had turned and aired his shirt and drawn on his long red boots. He then started before us, taking our letter to Ghardaïa, and vowing that we should fare as if we were the General himself. The kadi at Berryan had suggested to him, that, as we were not Frenchmen, we might be slighted with impunity, but our cavalier intended us to have the best of everything. He was a fine specimen of the proud, indolent, swaggering Bashi Bazouk.

Our day's ride was over rocks all but impassable for even Arab horses, but here and there were sandy valleys with some faint vestiges of leafless vegetation. P. shot a specimen of the almost unique bird, Dupont's lark, which we never saw but here; and while endeavouring to discover others, my little "Gazelle" became so unmanageable, that I was obliged to ride on far ahead, following some occasional camel-traces.

At the entrance of a savage gorge, like that of Petra, I halted and waited half an hour for the party, who were in some perturbation, as the cavalier declared he did not know the way. But fortunately some camels were in sight at a distance, and the Arab who was guarding the herd set us on the right track. We descended a ravine—one mass of naked rock, rough stone, and coarse débris, from the neighbouring mountain, but without a scrap of earth or a vestige of the minutest vegetation; yet even here were some beetles, and we had a scramble after a solitary marmot, or gundi, which escaped into a fissure.

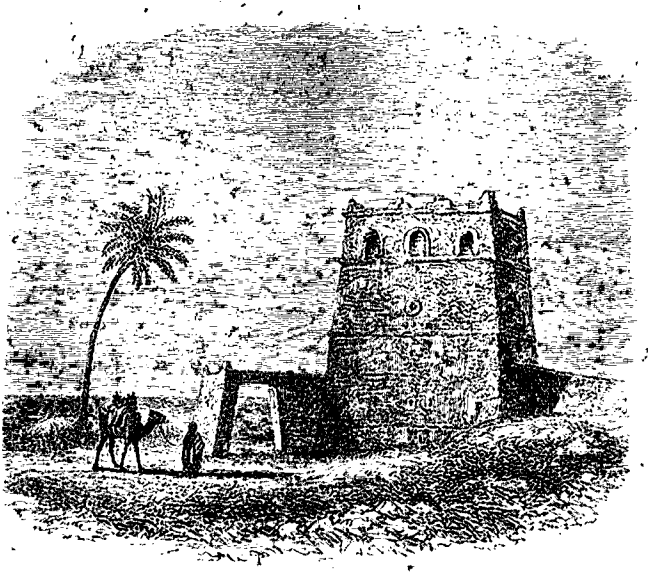
We had to lead our surefooted horses, and before sunset debouched from the gorge.

On a conical hill, encased by mountains savagely naked and rocky, the town of Ghardaïa rose to view, covering the slope and spreading at its foot, with its huge mosque-



Semaâr of Ghardaïa.

tower overshadowing all, and a smaller tower by its side, leaning like those of Bologna. The mud-plastered flat-roofed buildings started like terraces, tier over tier. Some were faced with arcades on their roofs—some few with pillared fronts. Crowning a taller hill, on the right, were the ruins and complete wall of an ancient town, called by the natives Baba Sâad; the earliest fortified position of the M'zab. On the left, the town of Mellika covered a small conical peak; and just to the south of it, on a similar elevation, loomed the town of Bounoura, each of them with their huge Semaâr tower starting up, and ruling over the city. Then the plain of the extinct

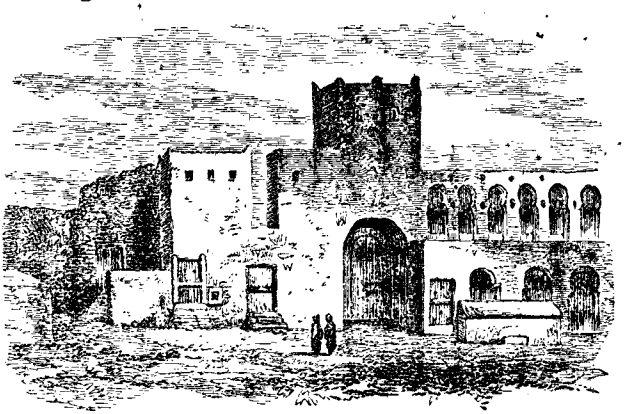


GATE OF GHARDAIA.

To face page 143.

river of the Wed M'zab opened, with a vast cemetery and a low cavernous tomb-building in its centre. Before us were the habitations of 27,000 human beings, and the graves of their ancestors for 1000 years. The plain was yellow and sandy, and of considerable extent, dotted throughout with black Arab tents, and studded with palm-groves and bright green patches of unfenced open gardens, each with a deep well close by.

We had to make a long circuit to enter by the principal gate, and my unmanageable horse, excited by the crowd, forced me to lead the van, dispersing groups of amazed urchins, and capering over the shins of the reclining seniors who lined the walls.



Gateway and Guest-house, Ghardaïa.

Windowless houses of a single story, with very narrow doors, formed the street. A few of them had holes in the wall, through which haïks, burnouses, cotton handkerchiefs, &c., were vended, and fruit-stalls stood in long rows—water-melons, pomegranates, and capsicums being the principal stock. The market-place was a wide irregular square, of considerably greater preten-

sions than that of Berryan, having on one side an arched gateway and square tower over it. To the right of this stood a house with some claim to an architectural character, having an open arcade in front, and a colonnaded verandah above. This was the abode of the Kadi of the Djemmâa, or President of the Republic. On the other side of the gateway was a house of less pretension.

Here we were met by the kadi, carrying three enormous keys, one wooden and two iron, and accompanied by several officials. We stooped to cross the threshold of the building, which had two courtyards, one for the horses, the other for the lower servants; and then an open archway, with a beam hung across it to keep out the quadrupeds, compelled a most undignified stride as we entered our guest-chamber. It had no windows, and one side was quite open to the yard. Fortunately the weather was very warm, yet notwithstanding this we had to nail up a tent to secure some shelter from the wind in this cave of Æolus, the walls of which were full of ventilating holes, from which the mud had dropped.

In the room we found a long carpet of thick pile spread for our reception, while the camel-drivers, who had been two hours in advance, had arranged our baggage around, with the sacks, panniers, &c., stowed away in the yard beyond. We invited the kadi to take a seat on the carpet, but left the other members of the djemmâa to squat in the dust, remembering that we had sunk in public estimation at Berryan from being too affable. In fact, we had need of all our dignity, as we afterwards discovered that our cavaliers had represented us to be commissioners, sent to inquire into the state of the country prior to the arrival of a French "colonne expéditionaire!" A basket of dates, a dish of pome-

granates, and a huge water-melon, were spread in the centre of the carpet, and after the usual oriental compliments the kadi and his friends departed promising everything we could wish. In the evening, after kouskousou, which was excellent, he returned, and we unfolded to him our plan of remaining here ten days or a fortnight, propitiating his hospitality by liberal gifts of India-silk handkerchiefs, best English knives, scissors, and needles, and secretly by a pound of good snuff; and by distributing Sheffield razors and scissors to all the retinue.

The Republic of the Seven Cities of the M'zab is governed by a djemmâa elected by the separate states, and presided over by the Sheik Baba, or religious chief of Ghardaïa. Besides this, each city has its own parliament for the settlement of its domestic affairs, and Ghardaïa has two kadis, one for each portion of the city—our host being the senior, and, as such, presiding over the municipal djemmâa, consisting of twelve members, elected annually by the votes of all householders, but virtually chosen for life, as no one is ever ejected at the election, excepting for flagrant misconduct or breach of the religious peculiarities of the nation. On all important occasions the Sheik Baba presides, but ordinarily he delegates the chair to the senior kadi.

The djemmâa meets every Wednesday, or rather a committee of three members and the president, for the despatch of such business as comes before an English petty sessions and parish vestry. The members serve in turn on these committees; and every month the whole body assembles for the hearing of appeals and other weighty matters.

None of the officials are paid, excepting the negro ser-

vant who delivers summonses and waits upon strangers, keeping the key of the guest-house. The kadis alone have houses found for them by the state.

The Jews have their own sheik, who takes cognizance of internal disputes, but is powerless in cases where one of the litigants is a Mussulman; and they are not allowed to have any share in the representation. For their privilege of exemption from serving in the national militia they pay a considerable house-duty, but in all other respects are perfectly free from exceptional imposts.

While preparing for the night we heard a loud tom-tomming without, which called us forth. It was a Zickâr being performed in honour of a wedding. In the centre of the square was a bonfire of palm-leaves, casting a lurid glare upon the swarthy white-clad inhabitants who, circle behind circle, filled the whole space. The principal performers were negroes. The band consisted of four tomtoms or drums, each formed of a very large earthenware vessel, covered only at one end with a sheepskin. To these was added a huge clarionet, very far gone in bronchitis. The tune, like that of the Beni Yssou of Algiers, consisted of only three notes, and was never varied. To its music the performers advanced with mincing steps, delicately bearing long switches, sometimes on the back of their hands, sometimes on the palm, sometimes on the top of their heads. Backwards and forwards they moved, menacing each other—now gliding almost imperceptibly on their feet, now dropping gently on their knees, and progressing in a stately creep, still holding their wands in various dignified attitudes. This movement, though not exciting, was certainly graceful after a fashion. At intervals, a new heap of palm-leaves cast on the fire

revealed, through the darkness, the swarthy belles of Ghardaïa on the tops of the neighbouring houses joining in the dance.

While looking on I was accosted by a dark Numidian, tall and fierce of aspect, with well-chiselled nose and features, who, having been sixteen years since a spahi in the French service, could once speak a little of their language; but he had almost forgotten it, as he had never had an opportunity of exercising it here. He knew the English by fame, having visited Malta on his way from Mecca; and remarking that we were the very first Englishmen who had ever penetrated to his country, expressed his astonishment at meeting us here, as he understood the Inglez were unable to live out of sight of the sea. He was a member of the djemmâa, gave us some information as to the place, and concluded by offering his services in any excursions.

Meanwhile the festival continued, and towards the midnight hour the performers became excited, and one or two actually raving. One was only restrained by force from thrusting himself into the fire; another was with difficulty held back by his girdle from rushing on the musicians. These two were laid flat on their faces in a state of wild ecstacies, utterly exhausted by their frantic efforts. Long after we had retired to bed we heard the ceaseless drumming and shouting without.

About a week was spent in rambles and rides within reach of our pleasant quarters. The old ruins of Baba Sâad, deserted since A.D. 1260, with various curious birds about them, were a favourite resort. The whole enceinte of this city was perfect, occupying a flat-topped hill. The walls, though beginning to crumble in places, are well preserved in a district where rain falls on an average only once in three years. The interior is, how-

ever, gone, and several lime-kilns, built like ovens, have exhausted the stones of the houses. The empty cisterns still remain entire, carefully plastered with cement. As the M'zab became securely established, and had, perhaps, shot off the Arabs who molested them in the plains, they seem to have descended and taken possession.

The Wed M'zab was here not a ravine, but a plain two or three miles wide, fenced on each side by rugged cliffs. As far as the eye could reach, the groves extended, dotted with patches of green barley, and a wide road winding through the Wed, with troops of camels defiling up the long avenues, and the tinkling of sheep-bells floating on the clear air. Here and there a patch of sand was occupied by black tents, low and wide. The dwellers therein, unlike those of Berryan, were Mozabites, nomads for the time, while their camels and a few flocks of sheep and goats could find a scanty pasturage here and there. The whole plain was intersected in several places by a roughly raised dam, like a sea-dyke, to intercept the sand and prevent its sweeping the tillage-ground and choking the wells. This simple device seemed thoroughly successful, if we might judge from the thick banks of sand accumulated.

As we wandered through the gardens, and the narrow lanes that intersected them, we were always surrounded by crowds of admiring boys, who hung incessantly on our skirts shouting the only French words they knew—"Dites donc." Our European guns excited much interest, but the percussion caps baffled the wisest sages, who would scrape, examine, and taste the detonating powder. In most of the gardens were strangely devised mud hovels, to which the inhabitants retire during the heat of summer, and in which they stow their fruits and

tools in winter; each hut having a flight of clay steps leading on to the roof, always the most frequented part of the habitation.

One evening I had been waiting in the palm-groves till near sunset, in hopes of making out the owls whom I could hear "booming" in the trees. A distant and merry din like that of a dozen charity-schools let loose rose on the still air. I sauntered on to discover the cause of this home-like sound, till on emerging from the woods I found myself close to the chief cemetery. At the edge of it was a flat lime-floored circular space, not unlike a threshing-floor, but much larger. Round this were squatting about eighty men, each with a huge dish of kouskousou, half wrapped in woollen cloths. The whole of the open space was filled with men, boys, veiled women, and unveiled girls, rushing wildly and cheerily like a swarm of bees from side to side, and culling one handful of the savoury morsels here and another there. My apparition caused no little sensation. A cry of "Inglez, akhool, akhool; kouskousou m'leia"—"Englishman, eat, eat; the kouskousou is good"—rose on all sides, and I was forced to go the round and taste from many a dish, while little boys and girls crowded about me, touched my clothes, and danced and clapped their hands with glee. I could scarcely comprehend the purport of this feast, at which I counted about 600 recipients carrying off doles in their burnouses, and I think there were at least double that number on the ground. The only reply I could obtain to my inquiries was a wave of the hand to the marabout tomb in the centre of the cemetery.

On my return home I learned I had been honoured by a share of the death-feast of Bab oul Djemmâa, the founder of Ghardaïa, in commemoration of whose

anniversary the rich provide, and the poor enjoy over his grave, a liberal largesse. Striking was the scene,—pure, unmingled, bright enjoyment in every face of that throng. A simple, amiable people are these M'zab. Oh that they had a better faith for the present, and hope for the future, than that cold Moslem formalism, and its sensual paradise!

The kadi usually paid us an evening visit, generally just before dinner, with a wattle in his hand about three feet long, and armed with several spikes at the end. This we took either for an offensive weapon or the insignia of office, until we discovered it to be his door-key with wooden wards. One night the kouskousou was vile, dressed with salted camel's flesh, and we indignantly sent it back by our cavalier, who was delighted to perform the office. Soon afterwards the kadi himself appeared at our door, overflowing with apologies and bearing a quarter of lean mutton in his hand; having fined, as he told us, the offending household four dollars, which goes, pro bono publico, into the treasury of the mosque.

We could not persuade him to eat with us, though he would drink coffee on the sly behind a curtain; but P. took the opportunity of asking permission to purchase a bottle of date-spirit from a Jew, which was readily granted, and a formal licence in Arabic written out and duly sealed. The Jews are not allowed to make the spirit, but some of their hakeems are permitted to keep it, to be used only for medicinal purposes, and not even then except by special grant from the ruling powers. Nevertheless it is to be feared that sobriety is not the universal virtue of their race, though excess must be very secret, or condign punishment would ensue. Our legislation has been far outstripped

by "barbarians," and the Maine liquor-law, we see, is no new or American notion, but has been in force, and to good effect, in Africa, for a thousand years. Certainly, in the elastic climate of the desert, spirituous liquors are rather repugnant than otherwise to a man in health. We found coffee supplied all the stimulus requisite for the day, and tea proved the most delicious tonic when exhausted by fatigues we could scarcely have gone through at home. During the whole tour I never, save once or twice, tasted anything stronger than coffee, and never was I blessed with more vigorous health.

One morning early I was sitting on a box preparing some birds as specimens, when lo, an apparition! It is too solid for his ghost! It is little Achmed himself, the lost one, who comes rolling in! He had recovered our track in the desert, and had actually arrived to within one dayat of the spot where we lunched the day after he strayed from us. He had seen from the distance the rain which fell so copiously on our tent, but it had never reached him. For three days and nights he had wandered without food or water. On the third night he had fallen asleep exhausted, and meantime the hyænas had eaten up his ass. Poor Bourriko! On the fourth morning he had reached Laghouat, black in the face from thirst and unable to speak. Thence after a day's delay he had been forwarded to us with letters from the Bureau, in company with the messenger we had despatched from Berryan. From his jolly condition we shrewdly suspected he had eaten his ass.

After a hearty welcome from his masters little Sancho tucked himself on a sheepskin in the courtyard, and there with uplifted arms recounted his adventures, Omar sitting gaping with fallen jaws on one side, and

the slouching cavaliers leaning against the pillars and gazing on the other.

I found my acquaintance of the djemmâa, the ex-spahi who had accosted me at the zickar, a very useful coadjutor in my naturalizing pursuits, and P. speedily nicknamed him my ratcatcher. He procured for me a fine specimen of the *Stellio spinifer*, a large lizard with prickly tail, called "ed Dabb" by the Arabs. It lives in perpetual warfare with the serpent tribe, and is said to kill with blows of its tail the horned cerastes, the terror of travellers, and probably "the fiery flying serpent" of Moses. Mine, however, seemed to be of peaceable tastes, excepting that occasionally he would chase poultry, but dates formed his favourite food. His colour, generally brownish-green, changed from time to time, probably from anger or pleasure, though not so much as that of the chameleon. Valuable medicinal qualities are ascribed to the dabb by the Arab hakeem—among them, that, if bitten by the cerastes, the patient has only to cut off the head of a dabb, make an incision in his own scalp and apply the lizard, when the virus will infallibly be drawn out by its attraction and absorbed. The only difficulty is, as my ratcatcher simply remarked, that the victim often dies before the poison has time to mount to his head.

He also obtained for me three specimens of the palm-rat, a beautiful little rodent, marked very like a badger, with a bushy tail like that of the dormouse. It lives entirely in the tops of the palm-trees, whence it is never known to descend, except occasionally for a migration in spring. In the crown of the tree these animals burrow, and form nests in which they lay by stores of dates for winter provision. One pair of mice will de-

posit from 8 lb. to 12 lb. of ripe dates. The natives hunt them systematically for the sake of these treasure-houses; but though often plundered, the little creatures are too active and wary to be easily trapped themselves. I kept mine alive for some time, but two of them escaped from their cage before I left the country.

Under the escort of my gamekeeper we visited the Jews'. quarter, which is a distinct portion of the city with separate gates. The whole population seemed to be exclusively employed in the working of metals, chiefly as jewellers and silversmiths, with a few farriers and blacksmiths. After watching their rude workmanship we stooped into several holes in the wall and negociated purchases. I invested a few dollars in signet-rings and in shawl-pins similar in shape to those used by the Highlanders for fastening their plaids. For these I paid one-fourth more than their weight in five-franc pieces, "fashion" not being rated so highly in Ghardaïa as in Bond-street.

I never saw Jews' features more intensely Jewish than these, although their complexions were as swarthy as if they had been Hindoos. The striking contrast in physiognomy between them and their neighbours does not by any means corroborate their tradition of the Moabite origin of the M'zab.

Our residence afforded us good opportunities for observing the public life of the Mozabites, for the market entirely superseded among them the use of shops, except for small groceries, salt, and nails. The square was surrounded by men sitting on the ground often in rows three deep, some buyers and some sellers, the latter with their wares on their knees or piled by their side. A negro proclaimed aloud the next article to be sold, while his assistant carried it round the square for ex-

amination. It was then put up and sold or bought in. The great inconvenience of this system was that we could never ascertain the real price of anything, especially of "dry goods." Among other articles sold were heaps of date-stones, which we were told were food for camels. Knowing the power of a camel's tooth, we yet wondered at this, these stones being too hard a nut even for a camel to crack, until we observed in front of the doors many rounded holes, in fact mortars, worked out of the roadway, which is the hardest of rock. At these the boys were busily employed towards evening in pounding the date-stones for their camels.

One of the principal home employments of the M'zab is the preparation of leather, and the dyeing of woollen and cotton stuffs for exportation. Not only do they tan large quantities of morocco leather with the rind of the pomegranate, as described at Laghouat, but they also prepare a very brilliantly coloured yellow leather. This is stained by a fungus which is found upon the *Pistachia atlantica* and *Pist. terebinthus*, a species of Polyporus unknown I believe to botanists. It is of a dull yellow colour, stains the hand deeply, and is so prized that I had to pay a dollar for a specimen which barely weighed a pound. Its native name is "S'rrha."

There is also another mode of preparing the choicer skins as morocco leather, by which they are rendered as soft and pliant as kid. The hide after the hair has been scalded off is steeped for some weeks in a decoction of ripe dates and water beaten into a thin paste. It is then tanned in an infusion of the nutgall of the Pistachia terebinthus. The leather so produced, though more flexible, is not of so bright a colour as that prepared with the pomegranate rind.

Their mode of bleaching wool is also peculiar. The

fleeces are steeped in water mixed with the powder of a limestone, in which there is much chalk and very little sulphate of lime, known by the name of "Timschund." After the wool has been spread to dry the process is repeated several times, until it becomes almost as white as cotton. Another kind of limestone, which they call "Sheb," perhaps containing alum, is used largely in the tan-pits, rather I imagine to soften than to prepare the leather. This sheb is a chalky-looking soft stone, sometimes as dark as fuller's earth.

For yellow dyes the M'zab use several plants. The "Bukhamsfa" is the stem and especially the root of a woody plant collected in the desert, which dyes yellow, but of a paler colour than the "S'rrha."

For primrose-coloured dye they collect the blossoms of a species of hyssop or caper (*Capparis ovata*), which grows abundantly about Ghardaïa, and which they call "Tihl oul' out." It has a very deep evergreen leaf, and large yellow blossom. The seed-pods of this plant are also crushed for stanching wounds, and are really efficacious for this purpose, as I proved by my own experience.

For red dyes they use the root of a small desert spurge (*Euphorbia* ——?), which is found near Souf, and highly prized. They also use a wood brought from the interior of Africa, called "L'uhk." Another dye, a purple, peculiar to Guerrara, is the seed of the "Tak'ouit," a desert plant, which I was unable to identify. From Tunis also are imported large quantities of the buds and blossoms of the myrtle, which they bruise and burn as perfume, possessing in common with all Orientals a passion for scents. Orris-root is also used for the same purpose, and quantities of another root imported from Morocco under the name of "S'rrhine."

Close to our door was a raised "mastaba" or stone platform, occupied on alternate days by tailors and shoemakers, while their customers stood round and watched the workmanship.

On the other side, abutting on our stables, was the public abattoir, where mutton was daily killed and vociferously put up to auction in small morsels, soon after daybreak, by a brazen-throated negro. The consumption appeared to be from twelve to twenty-five sheep daily, and half that number of camels—not large for a population of 13,000 souls. Outside each gate was a lime-bedded public threshing-floor.

The square was constantly filled with camels loading or unloading: we witnessed the successive arrivals or departures of caravans, from or for Tunis, Fez, Algiers, Morocco, Soudan, and Timbuctoo, conveying dates, barley, wool, cotton, indigo, leather, gold-dust, ivory, and all the varied raw produce of Central and Northern Africa. Here might be daily seen the tall white dromedary or "mahara" of the Touaregs, from Timbuctoo, lying side by side with the mangy diminutive camel of Algiers.

Before the gate of the square was a raised whitewashed mastaba for prayer, on which every evening we could see many shrouded figures prostrate in devotion, and at least not ashamed of their profession.

The women do not appear much in public, but are scarcely so secluded as is usual in Mohammedan towns. P., who used from our housetop to watch them on their own with his telescope, made out satisfactorily three several styles of dress, their déshabille, full-dress, and promenade envelope, all different from the Arab costume.

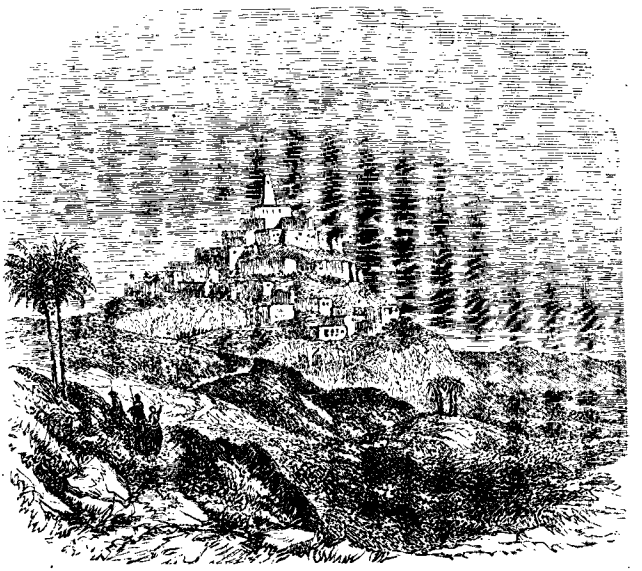
Their hair is twisted into a huge knot on each side the forehead, and another knot behind on the left side. These are neatly plaited and fastened with large gold or

more generally silver skewers, and are powdered with red and white beads. On the right knot only they carry a gold or gilt star with gold wire pendants, and sometimes, though rarely, coins attached. They have pendent ornaments also on the back of their head, and long twisted earrings. These ladies are very dark, and besides these decorations have red or black patches of paint on the forehead, and a black patch on the end of the nose, "making night hideous." They are much addicted to haïks striped black and red, or black and blue, and wear silver rings sometimes on all their fingers, and also massive silver bracelets and anklets. The poorer sort substitute bronze armlets and anklets.

One indulgent husband saluted P. as he sat on the roof before breakfast with a "Bon soir" from below, and then going to his house let two of his wives peep at us from behind the door-jamb. One was coy and much bedizened, the other plainer and with less reserve. The only jewellery worn by the men is their signet-ring, always of silver. I never saw any Mozabite, however squalid and poor, without this. The Jewish men sometimes wear more ornaments, but otherwise there is no distinction in dress between them and the Moslems, except that, in place of the red chachia under the turban, they always wear a black one; but as only the edge of the fez is visible, the distinction is by no means conspicuous.

There is a slight admixture of negro blood here, for slavery is permitted; and as the children of a negress inherit equally with others, some even of the richer inhabitants are half-castes. The slaves are well treated, cannot be beaten, and are allowed to earn money. As far as we could judge, they seemed to be on an equality with their masters, and, after the labours of the day in

the garden were over, ate out of the same dish. The children of a slave are free by M'zab law. We saw some small parties of negroes, brought by Touaregs from Timbuctoo, on their way to Tunis to be sold. They were chiefly children of both sexes; and the price of a slave varied from 12*l.* to 16*l.* sterling. Either labour is cheap, or money very dear, for a civil old negro, a native of Soudan, who had purchased his freedom for about this sum, and who waited on us by appointment of the djemmâa, seemed overwhelmed with surprise and delight at the gift of two dollars on our departure.



City of Mellika.

CHAPTER X.

Mellika — The sacred city — Achmed's fame — Inquisitive maidens — The old Kadi — Wareglans — Smoking keef — Gorgeous sunset — Love of tobacco — Horse-borrowing — A lawsuit — Municipal duties of a Kadi — Beni Isguen — The city of soldiers — A travelled Mozabite — White camels — Novel mode of quarrying — House-building by subscription — Simple loom — Rifle Volunteers — Ball-practice — Ideas of England — An unpopular chieftain — El At'f — Hospitality — Bounoura — Metlili — The Chaamba — Our host — Parting gifts.

We devoted one day to a visit to Mellika, the cathedral and sacred city of the M'zab—little more than half an hour's ride across the plain. We went in state, with all our cavaliers and servants mounted, to pay due respect to the kadi, reputed a very holy man. The city covers

and caps a conical hill, with the usual immense Semaâr or mosque-tower at the top.

The approach up the cliff-side is by a zigzag, so narrow and steep, being a succession of steps cut out of the flinty rock, that we had to dismount and have our horses led up-stairs. We were thronged as we stooped under the low gateway by a crowd of curious expectant faces, from amongst whom the venerable long-bearded kadi advanced with a welcome, and pressingly invited us to dinner, which we declined, having ordered kouskousou at home. The streets were paved with elementary rock, and encumbered with camels lying in every possible place and in every possible position, over whose necks we had occasionally to scramble. But the old chief insisted upon our visiting all the five tumble-down gates of the city, of which he was evidently very proud. The fame of Achmed, and his wonderful escape in the desert, had travelled hither before us, and every one greeted Sancho, who greeted every one in return, in a manner rather incontinently jovial for an Arab. On a housetop were a bevy of nut-brown maids, who, in their fervid curiosity, had forgotten to veil their faces. They were consequently pelted with stones by some of the posse comitatus, and retired in confusion, not, however, before having taken a good look at the Ingleze.

As we walked on, the old gentleman told us how much the feelings of his people were hurt at our not spending at least one night amongst them, when we had remained so long at Ghardaïa. He was a travelled man, having spent fifty years at Algiers, where he owned and still retained some Moorish baths. He was chief of the M'zab in that city, and also President of

the Corporation, which is responsible to the government for the good conduct and bad debts of all the Mozabites in Algiers. He only returned last year, that he might end his days among his own people; and, from his high character for probity abroad, was at once elected kadi. He remembered very well the bombardment by Lord Exmouth, and watched the fleet sailing into the bay, but quietly added, that, being a man of peace, and finding the weather very warm, he thought it best to retire for the day to the cooler shades of his country garden.

We were conducted by him through the cemetery, and some ruined houses outside the walls, as he was determined we should lose nothing by the omission of our cicerone, and then, though we could not stay and dine, he insisted on our resting at his house. He found his home locked, and while he thundered and shouted, that the females might have time to prepare for us and conceal themselves, we were seated on the doorstep of his opposite neighbour. At length we were ushered into the courtyard, where a mat was spread, with dates in the centre, and our host and friends stood round us.

In one of the streets we found a number of men from Waregla, very swarthy and with thick lips, somewhat approaching the negro type, who were smoking keef, or "hasheesh," which latter term, though applied generally to the intoxicating hemp-seed, simply means "weed." This keef, though not a hemp, has the same effects, and is an indigenous desert herb. The M'zab are rigorously precluded from such narcotics, but the Wareglans and other tribes indulge in them until they sink in a state of stupefaction. One of the smokers handed me his pipe, which I tried. The taste was extremely bitter and astringent, and one whiff nauseated

me. I obtained a specimen of the stem, leaf, and blossom for my herbarium, but have not had an opportunity of determining the species. All portions of the plant are used, the seed being the most intoxicating.

When we reached the city gate, the Kadi Bouhammed drew our servant aside and intimated, that, though in his present official position he must not say he smoked, yet that, having been fifty years in Algiers, a whiff of tobacco would be very acceptable. We accordingly charged him to call on us the next day. As we descended on foot from the holy city, the distant hum of Ghardaïa, and the nearer creaking of the pulleys of a thousand wells, fell on the ear, while the silvery vapour of evening rose from the watered gardens. The setting sun gilded the dreamlike landscape, till, before we had reached our quarters, it had melted into a bright starry night, clear and deep, such as southern climes only know.

The next day old Bouhammed paid us an early return call. The reason was soon explained. He confidentially informed us that he dared not smoke at home, as his elder wife was very talkative, and rigid in her notions of M'zab proprieties. She would soon proclaim his irregularities, and he might be deposed from his office. I should have mentioned that the forbidden indulgence is tolerated in Mozabites who have spent their lives in other countries; but the religious sheik is expected to be superior to any such weakness. He sat down comfortably with his coffee and pipe, behind an extemporized curtain, and was joined by my friend the ratcatcher, deliberate in word and action. The venerable old kadi's eye beamed as I slipped into his burnous a half-pound packet of tobacco, followed up by a shilling box of scented snuff. He wished to prove

his gratitude, and, after a pause, rose, went into the yard, and held a consultation with Omar. Omar returned with him, and explained that the old gentleman intended to visit Algiers in the summer, and that, if we could leave him an address there, he should be glad to try to procure a plume of ostrich-feathers, or even a skin, as an acknowledgment and souvenir of our visit to Mellika. I suggested the propriety of substituting some skins and eggs of the birds of the country, and furnished him with a box properly addressed.

We had an amusing squabble about a horse which Omar had borrowed from a man to whom it never belonged. The real owner appeared before our quarters boiling with indignation, and demanding compensation. The dispute was referred to the kadi on his arrival, who decided, that, as Omar had paid nothing for the use of the animal, we should now pay one franc a day to its owner, and that the lender of his neighbour's goods should lay down an equal sum.

While walking out afterwards we encountered our kadi sitting on a rock outside the city, superintending some workmen repairing conduits. This is one of the chief avocations of the ruler. Learning that we had made some purchases of the Jews, he requested to see them, and, having examined them, declared the silver good and the price moderate. Had it been otherwise, fine and bastinado awaited the offending Hebrew.

He is not a richly paid president, receiving about 30*l.* sterling per annum, and perhaps as much again in pickings from fines. Besides this, of course, he trades. His most responsible duty is the collection of the French tribute. This, for the city of Ghardaïa, amounts to 14,000 francs per annum, and to 30,000 francs for the whole confederacy—in return for which,

the suzerain power secures them from all wars or marauders, and opens to them freely the markets of the Tell. Not a very heavy tax for a commercial people who are seeking the security of a powerful flag.

As Mellika is the sacred, so Beni Isguen is the military city of the confederacy. We sent a complimentary letter to the kadi, announcing our intention of visiting him, and set off early on the morning of the day fixed, with a somewhat imposing retinue. All our retainers had succeeded in getting mounted for the occasion; and a member of the djemmâa, and an Arab sheik from outside, volunteered respectful attendance. Omar had not forgotten his panniers to receive the gifts of barley, dates, eggs, and fowls that from time to time dropped in; and thus, with the chieftain's state, he judiciously combined the friar's wallet. Omar never omitted to impress upon us his convenient maxim, that the reception of gifts was a proof of rank.

Each of the M'zab cities has something peculiar in the construction of its buildings, in its laws and customs; but Beni Isguen is the most peculiar of all. It stands on the side of a hill, facing the Wed, to which it shows a tendency to descend, the summit of the hill being crowned by ruins, now outside the walls, but which were formerly the centre of the city. It boasts a double circuit of fortifications, there being an outer wall, enclosing a clear open space, free from buildings, but partially occupied with tents. At the gate we were met by the members of the djemmâa, armed with their long keys, which to-day must have locked up many curious wives. At the inner gate we dismounted, and were conducted to the market-place, where in the guest-house the usual pile-carpet and basket of dates were laid for our reception. The members of the sanhedrim

stood respectfully round, our cavaliers sat at the door, and Omar standing between them acted as the shuttlecock of conversation.

Among the bystanders we discovered a man who could speak French perfectly, having been in Paris and at one time orderly servant to General le Vaillant. He acted as our guide while kouskousou was being prepared, for our retinue were requested to remain in the guest-house—no inhabitants of other cities being permitted to promenade the streets of Beni Isguen. These, like the rest, were crowded with camels lying down, and bales of merchandize heaped at every corner. Among the camels we noticed many white ones of enormous size, from Touat and Timbuctoo—one in particular, a colossal beast, towered even above his tall fellows. He was the largest camel I ever saw, of a cream-white colour, and bore the same relation to the others that a London dray does to an ordinary plough horse.

These great camels must not on any account be confounded with the more celebrated Touareg "mahara," or swift white dromedaries. They are as distinct from them as a cart-horse is from a thoroughbred racer, and are capable of bearing more than double an ordinary camel's burden. They can travel for fourteen days without water, and, as far as we could learn, are only bred in the neighbourhood of Touat, in the very centre of the desert. Being most intolerant of cold, they are never taken to the north of the M'zab or Wareglan country, but there their burdens are transferred to the smaller animals of the Tell.

The shops of Beni Isguen are better stocked than any others of the confederacy, the principal wares being leather, dyed cloths, and all sorts of materials for tanning

and dyeing. The town is more solidly built than Ghardaïa, and boasts of two semaârs, or mosque-towers; one for the upper and more ancient town, which is now partially in ruins, and the other for the lower city.

The building-stone is all quarried from the opposite hill, across the Wed. The mode of quarrying is by working any convenient fissures, into which they pour water, and which let in the rain (when it falls), and thus the stone becomes dislodged. They also use very sparingly gunpowder manufactured by themselves. When any stone has fallen, it is the property of the man who, in a race from the city, is able first to set his mark upon it. As soon as any man, having in his father's lifetime come to years of discretion and taken to himself a wife, wishes to build a house, he sends the negro crier round the city, and on a fixed day every male inhabitant is compelled to convey to the site three stones fit for building, free of cost.

The Beni Isguen are the most warlike of the confederacy, and the only city who regularly practise the use of arms. They were for some generations tributary to Ghardaïa, but asserted at length their independence, and know how to maintain it. Their population is over ten thousand, and their djemmâa consists of fifteen members, who again choose three, in whose hands rests the whole executive authority; but for legislation, taxation, war, and treaties, the whole fifteen must deliberate and a majority decide. The Sheik Baba has among them no veto.

They boast they are of the purest M'zab blood, and no Arab or Jew is allowed to dwell here, this being the only one of the cities in which there is not a Jews' quarter. They are all of two clans: the Beni Isguen, who came, they say, from Hamoum, on the

Arabian shores of the Gulf of Bab-el-Mandeb; and the Beni Berber, whose name tells their origin, and who are said to have sprung from Mascara, and joined the M'zab in their wanderings. The former family is by far the most numerous, but both are mingled by intermarriages.

None but members of these two families can possess houses or gardens, yet certain dependent Arab tribes are allowed to pitch their tents in the open space between the outer and inner walls. At the time of our visit these nomads had just arrived to deposit their provision of corn in safety. At the doorway of each tent was a simple loom for weaving, behind which we could see the busily-occupied hands of the veiled women. I noticed one little girl, apparently not more than seven years of age, weaving a piece of coarse woollen cloth. Her whole apparatus consisted of two canes, to which the woof was attached, and with her little fingers she worked in short pieces of worsted, about a third of the width of the web. These she pressed down with a five-pronged iron fork. After arranging about a dozen threads in this wearisome manner, she would move on, and commence other short morsels, carefully meeting the ends of the former piece. No wonder that their haïks and carpets are dear, fabricated after this primitive fashion.

After dinner we walked up to the top of the hill across the wed, on the crest of which are the ruins of the ancient city, the earliest erection of the M'zab when they first settled in this valley, said to have been in the year A.D. 777. The present city is comparatively modern. Here are the butts of the Rifle Volunteers, at which every fortnight one hundred of the citizens are summoned to practise ball-firing for three hours, in virtue of their dignity as the militia of the confederacy. The target is

the face of a rock, which, by the practice of centuries, has actually been hollowed into a cave of twelve feet deep. This presents the convenience of enabling them easily to re-collect the whole of the expended lead.

Our voluble guide amused us by recounting how the people of Berryan had written letters to all the cities announcing our approach, and describing our food, habits, and also our supposed object in travelling, which was to collect information for the British government. But the strangest piece of information to him was that we stripped every morning and washed our whole bodies in *cold* water. This, unless it were from a dervish's vow, he thought could only be the act of madmen, and he inquired if it were possibly true.

The M'zab had an idea that the English intended to conquer and occupy Morocco, and that our visit had something to do with this scheme, which they rather welcomed as giving them an opportunity of procuring English cutlery and cottons, on both of which they set a high value. Our friend Mazargoun wondered how a great nation could submit to be governed by a woman, and still more, since he had heard that not only did we endure this, but that we had allowed her to marry a stranger, as if there were no Englishmen fit to be the fathers of kings.

About our religion they had clearer ideas. The Imaums had told them that we were nearer the Moslems than any other of the Western people; for while we had gone beyond the Jews in accepting the mission and the Korân of Jesus, we refused to pray to any but the true God, did not worship Mariam, and had no images or pictures in our devotions. I tried to explain to him the Divinity and Redemptorial mission of our Saviour, but, like all his fellows, while admitting it, he maintained it was superseded by the subsequent coming of Mohammed.

He offered to take us into the mosque; but, as he remarked that it might give offence to his untravelled brethren, we prudently declined, especially as we had ascertained by our telescopes from the neighbouring hill that there was nothing to be seen therein.

When we were about to depart, the djemmâa requested our names and addresses, as they have a register containing all the events of the city, and record of its visitors for nine hundred years. The book was produced, and we handed them our cards, which puzzled the scribes; but we repeated our names till they seemed to master them, and inscribed them in Arabic characters in the folio, inserting also our cards at the place.

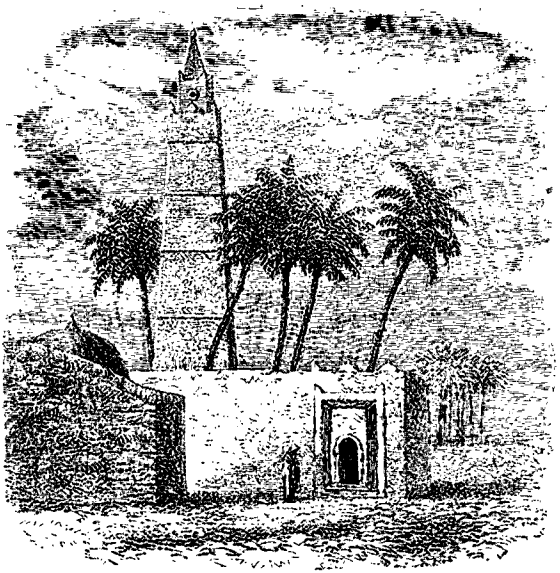
Omar then came up with an important face to say that the kadi begged us to visit him. He had before come to pay his respects, but had not remained, being just now unpopular in the republic. While President of the Djemmâa, Bayou ben Sliman had been confirmed in his office by the French (the only active interference which the government of Algeria have exercised), and in that capacity had joined a spahi corps for six months. On his return he had been sent to Coventry by his colleagues for stooping to serve with Arabs, and had been deposed from all municipal functions, though the prudent Mozabites cautiously avoided a collision by leaving him in possession of his dignity and his percentage on the tribute. He feels strong in his French support, and is doubly polite to their friends. He had hoped we would have stayed with him, and proved to his neighbours the respect in which he was held by Europeans. We of course followed to his mansion, and descended by steps into a low cavern, with carpets and cushions piled upon them, and a leopard-skin spread in the corner as the place of dignity. This place we took to be the cellar,

but found it was Bayou's vestibule. After feeding on dates and water—as we will not dine—our host insists upon having the pleasure of providing us with a feast, and four fat fowls and two score eggs are handed to Omar, who deposits them with a grin in his pannier at the door.

The kadi kindly offered to escort us to El At'f, the last city towards the south, and mounted a splendid charger, the finest horse we ever saw in the Sahara. El At'f is situated precisely like the other cities of the confederation, and contains between seven and eight thousand inhabitants. It has a double wall, like Beni Isguen, and an open walled space for the camels of caravans. It is said to be the oldest city in its present unchanged position. The houses are built of good stone, and generally whitewashed, being in this respect in advance of their neighbours. We leave our horses at the gate, and two ancients conduct us on foot through the narrow and sometimes arched streets, impassable by any quadruped.

The city boasts of three mosques, and here alone are many palm-trees inside the walls on artificial soil; for the whole surface is a glassy rock. We saw in the shops a kind of truffle exposed for sale, called Tourfaz, and found in the deserts south of Guerrara. There was also another strange edible, a small lichen, which has the appearance of nodules of sand, and is very tough and insipid. It is gathered by the Touareg, and used by them as food in times of extremity. It is said to grow on the loose sand of the southern desert, where no other vegetable production exists.

Here, again, we were ushered into the ante-chamber of the president's abode, and compelled, for civility's sake, to gorge dates of the most delicious sweetness,



SEMAUR TOWER, EL AT'F, BENI M'ZAB.

To face page 170.

made up into a conserve with almond-paste. By the aid of copious draughts of water we contrived to wash down enough to save appearances, and to escape the imputation of barbarous rudeness.

The market, much frequented by traders from the interior, was in the city, but in summer, for better ventilation, is held in the open space without. Though the gardens were more choked with sand than those of Ghardaïa, yet they were quite as extensive, and necessity had impelled the inhabitants to terrace the hill-sides, which were covered with artificial soil, carried up, and planted with barley and pumpkins. Before we bid adieu there was a conference among the elders, and presently two of them rushed off, returning speedily with a negro, who bore three fowls and a dozen eggs, which we should have hurt their feelings by declining, and which Omar complacently stowed away in his insatiate pannier. The polite and friendly Kadi of Beni Isguen insisted on accompanying us, belated as he must necessarily be, the whole way to our quarters.

We afterwards visited Bounoura, beyond Mellika, the smallest city of the confederation, returning only one member to the national djemmâa. Its palm-groves are poor and straggling; but this decayed borough has seen better days, for the top of its hill is occupied by a mass of ruins, all the old town, except the crowning mosque-tower, having crumbled away. It looks like a collection of houses pitched upon boulders, which have been rolled together into a heap, and surrounded by a wall. Even the upper side of its market-place is faced by native rock, which forms an overhanging precipice. I doubt whether it possesses even a guest-house, for our complimentary entertainment of eggs and dates was

spread on a mat and carpet in the centre of the square.

The M'zab once possessed an eighth city, Metlili, which is reached by a dry ravine, about eight leagues S.W. of Beni Isguen. It is an extensive oasis with walls like the rest, but was conquered some centuries back by the Arabs of the Chaamba tribe, the most lawless and predatory of the clans of the Sahara. These Amalekites have taken advantage of houses built, wells digged, and palm-trees planted to their hand, and have become dwellers in a city, which is now the capital of their widely extended territory, and, unlike Waregla and N'goussa, has no Gætulian or Berber population. The language, however, is neither Arabic, Kabyle, nor M'zab, but probably a corrupt dialect of the Kabyle or Berber tongue.

The town is built exactly like Bounoura on the side of a hill, with its two tall mosque-towers, the upper one fast crumbling to decay. The streets are narrow and filthy; and the squalor of all around presents a striking contrast to the neatness and cleanliness of the M'zab. Half the houses are in ruins, and the owners seem to want the energy to repair them. Yet the palm-groves are good and extensive, and with proper care would surpass those of any M'zab city. The inhabitants depend chiefly upon the date-trade for subsistence, and, unlike their neighbours, have no caravans. The place does not repay a visit, and the character of the people is so treacherous and inhospitable that the traveller is ill-advised who needlessly ventures among the Chaamba. Their government is after the Arab fashion, two sheiks holding an uncertain and often disputed authority over two septs.

Having explored the whole of the neighbouring terri-

tory, we would not further wear out our welcome. Our intention of proceeding to Guerrara having been announced, old Bouhammed, the Kadi of Mellika, and Bayou of Beni Isguen appeared early the following morning to pay their respects. Bayou had brought with him an Arab bit for my "Gazelle" as a parting gift. A more acceptable present could not have been devised; for "Gazelle" despised a French snaffle, and, when he became excited, my efforts to hold him were impotent. The Arab bit consists of a stout curb; but in lieu of a chain, a strong iron ring plays on a swivel attached to the centre of the bit. This ring is slipped over the lower jaw of the horse when the bit is put into his mouth, and gives a powerful leverage to the bridle. No horse can possibly resist its force, and, feeling its power, seldom attempts a second struggle. The rider, too, soon learns the value of a light hand, for the slightest weight on his rein brings his horse on its haunches.

Bayou declined tobacco with a knowing wink, evidently afraid of being seen, but, on being questioned, hinted that he would not refuse a specimen of English silk. I fortunately had a handsome India handkerchief ready for him. The old Kadi of Mellika accepted on the sly a gift of a pound of tobacco and half a pound of snuff, and reiterated his promise to assist me in my search for eggs and birds. They both consented to stay to breakfast off their own fowls and eggs. Their supplies were opportune, as the expected kouskousou never arrived, and out of compliment to us the chiefs made heroic and not altogether unsuccessful attempts to use forks and spoons. We wound up with dates and apologies, coffee and ditto, and Bayou bid us a hearty farewell as he sprang upon his noble charger. He was

a fine, open-faced, open-hearted fellow, one of nature's soldiers every inch.

In the evening our own kadi, who had commenced the day by a gift of a water-melon before we were astir, came in to pay his farewell visit of ceremony and take his forbidden luxury of a cup of coffee. A negro followed him bearing a huge basket of the finest dates, and eighteen flat loaves of barley bread, as a supply for our journey. He requested a letter to certify that we had been satisfied with our entertainment, and demurely smiled as I folded it in another silk handkerchief. We then gave him our cards and addresses, that the event of our visit might be duly enrolled in the national history.

CHAPTER XI.

Departure from Ghardaïa — The desert again — Wed N'ça — Vegetation in the wilderness — Effects of moisture — Ostriches — Antelope — An assault — Achmed's opinion of his race — Guerrara — Full moon — Festivities — Intestine warfare — Use of the arch — Tombs of the saints — Weddings — Dress — Demands on a hakeem — A traveller from Timbuctoo — R'dames — Touat — Achmed's rebellion — Amusing trial — The oldest inhabitant — Farewell to the M'zab.

THE combined effects of toothache and a zickar outside did not predispose to early rising, but at 4 A.M. we were in the square, the camels loaded, my lizard and palm-mice ensconced in the cages Omar had been for two days devising for their use, and Achmed, mounted on the water-skins, sent on in charge of the caravan. We turned back to our courtyard for coffee in company with the worthy kadi and my ratcatching friend.

Two hours' ride down the valley of the M'zab brought us abreast of El At'f, where we were met by a deputation of the ancients, with a present of dates and eggs, and a request we would remain a day or two with them. We were obliged to decline their proffered hospitality, when they expressed their earnest hope that we would report favourably of them to the English government. It was in vain to repeat our assurances that we had no official character. For what other purpose, asked they, could we choose to travel in such a poor country? They desired us to tell our countrymen that they would always find the M'zab honest traders, and punctual in payment. Eagerly did they inquire if there were any chance of their obtaining English cottons and cutlery, two articles from which they complained they have been entirely debarred ever

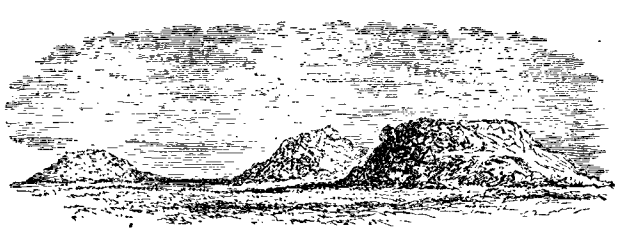
since the French got the coast. On hardware they were especially eloquent. "See, will this thing cut?" exhibiting a knife innocent of steel. But in the time of the Deys tools were to be had without sending through Morocco to Tangiers for them.

Soon after parting from these business-like gentlemen we watered our horses at the last well, where a boy was drawing, and turned up a steep slippery path from the wed. It was impossible to ride, and not one of our led horses escaped a fall. At the top of the ascent we bade farewell to the fair oases gleaming brightly in the morning sun, and were again in the dreary Chebkha. The temperature had changed at once, and the wind blew cold and bleak. One of our camels lay down, and refused to proceed further. Fortunately he was laden with water-skins, a burden easily distributed among the others. We were obliged to leave him to his fate, or rather to the care of an Arab who hove in sight with a herd of his own, whom we charged to conduct him to Ghardaïa, in trust to the kadi, to be sent by the first return caravan to his owner at Laghouat. Sooner or later he was sure to arrive there, for the laws of the desert on camels are, like those of hospitality, rarely transgressed except with a hostile tribe.

We were joined soon after by a solitary Arab horseman, on his way from Morocco to Souf, who seemed glad of our company, or rather of that of our servants, for a couple of days. The Wed Irhloh afforded scant shelter and a hard bed for the night, and early on the following morning, after crossing another piece of stony desert, we descended into the ravine of the Wed N'ça. This desert was covered with very sharp gravel, chiefly flints of various colours, the matrix of which had become decomposed into sand and been swept away by the winds. After following

the course of the Wed N'ça for about an hour we came upon a pool of water, the first we had seen since we quitted Laghouat. Here we halted for noon. The bed of the N'ça is a narrow strip of loose sandy soil, sometimes widening into a small plain, bounded by masses of naked rock. By its banks we found the first tree we had seen out of a garden since leaving the dayat of Tilghremt: it was of course the usual terebinth. It is strange how instantaneously water changes the character of the scene. Here were grassy banks in startling contrast to the desert round, and bushes really green; one of them, a *Pistachia*, I had not before observed, with spines and leaves like our hawthorn. The wild jujube predominated, and there was abundance of a smooth leafless brown plant, the "Retza" of the East, here called "Dreen."

On a hill on the north side of the river was a half-ruined pyramid of rough stones, said of course by our Arabs to be Roman, but in all probability an ancient Gætulian sepulchre. When perfect it might have been about forty feet in height. In the valley below it were four large round cairns, not far apart, pronounced by the cavaliers to be a Roman camp, but very like old chieftains' graves. The pool on the surface was after



Colossal Cairns.

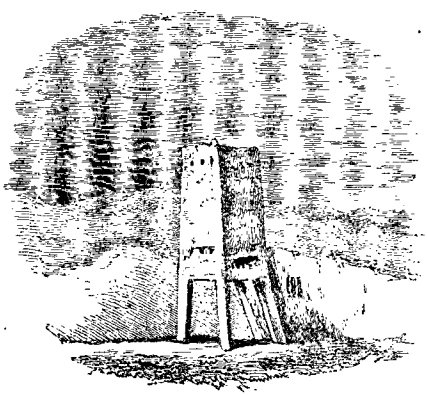
all little better than a few barrels of muddy water trapped in a basin to do duty for the absent stream, but

the banks were well trodden by the feet of ostri ch-antelopes, and gazelle.

We followed the fresh tracks of a pair of ostrich for two hours down the valley, very like the impression of a pair of boxing-gloves, but never obtained a glimpse of the birds; though on the crest of a ridge about 500 yards off stood an antelope quietly browsing. We hastily dropped balls down our pieces and attempted pursuit, but in vain, not, however, before we had time to examine carefully this beautiful creature. His large diverging spiral horns were black, and his neck dark. The rest of his body seemed almost white, and his size that of our red deer. It was the "*Antelope addax*" of naturalists, and probably the animal alluded to by Shaw, and by him identified with the Pygarg of Deuteronomy. There is a specimen in the museum of Algiers, obtained in the Sahara of Oran.

We must now leave the N'ça and cross the desert to Guerrara, the seventh city of the M'zab, situated in an isolated oasis, and having very little intercourse with the other republics. The table-land is at first covered with sharp pebbles embedded in soft stone, but gradually the rock gives up the contest with the encroaching sand, on which we can easily trace the course of our camels. We ride on sharply and come up with one of our camel-drivers sitting despondingly by the side of the track. He plaintively related how he had been beaten and wounded by Achmed, because one of the camel-loads had become disarranged on the march, and he limped painfully along with his tattered sandal in his hand. Our head mekhasni became indignant and half unsheathed his maiden sabre at the recital, the said sabre, however, being so blunt, and Achmed's head so hard, that little blood could be shed in the encounter. We promised redress, as the offence was a grave one, and here out of

pale of civilized laws we were compelled to keep our party in order and repress mutiny by the dread of our own weapons. When within six hours of Guerrara we sent our head cavalier with a letter. He was soon out of sight, and we came up with the caravan. Another sebaur complained, and Achmed from the top of a camel defended himself. He had evidently been the aggressor, but had had the worst of the encounter, for three had set on him at once and had left marks of their prowess in his mauled features and scarred nose. He amused me by his unmeasured abuse of the Arab race, and his assurances that they were the falsest and laziest of mankind, and could only be kept in order by the stick, for they understood nothing else. I accepted his arguments and promised him the bastinado for the next assault.



Tower on the Wall, Guerrara.

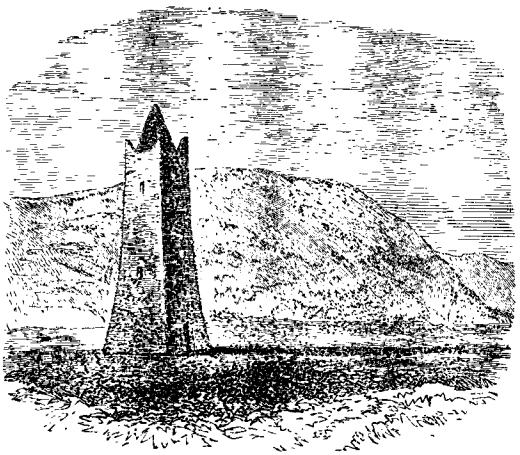
Night fell on us as we crossed the sandy level, but the full moon revealed the frequent tracks of sheep and goats, promising milk for our coffee and mutton for our kouskousou. We soon entered the outer enceinte of

Guerrara by a breach through the wall near a watch-tower. Some Arab tents occupied the open space, till we entered the gateway, an imposing structure for the country, possessing guardrooms with loopholes both at the sides and above, pinnacles and machicouli gallery. Here, marshalled in due order, we were met by the kadi, deputy kadi, and members of the djemmâa drawn up in front of the parliament-house, and all armed with their great keys. The chiefs held our horses as we dismounted, and, after the exaggerated compliments of the East had been gone through, they conducted us to the guest-house, a small open court, surrounded by arched sheds, exposed to the winds of heaven, dirty, and disreputable. But a thick-pile carpet had been spread upon the stones, and a wax candle lighted at the expense of the public; and soon an excellent dinner of kous-kousou and fowls followed a whet of dates and coffee, served in public and shared by the principal officials.

After eleven hours in the saddle we were not loth to see our hosts finish their dessert and depart. But even then sleep was not secured. To say nothing of the thirsty aborigines in the carpet, it was full moon, and the luminary of night was honoured till long past midnight by an incessant tomtoming, screaming and shouting of boys and dervishes, more noisy than a zickar. An early bath before sunrise on the housetop, the only private spot within reach, soon obliterated the recollection of these minor evils, and here we speedily established dressing-rooms, laundry, and poultry-house.

The town of Guerrara is surrounded by small eminences, each crowned by a marabout or tomb of a holy man, the most conspicuous being a cenotaph to the favourite Sahara patron, Sidi Abd-el-Kader, not the warrior, but a roving saint, who has the honour of marabouts from

Algiers to Waregla. The cemetery, unlike any other we had seen, was, in defiance of all regulations of the



Marabout, south-west of Guerrara.

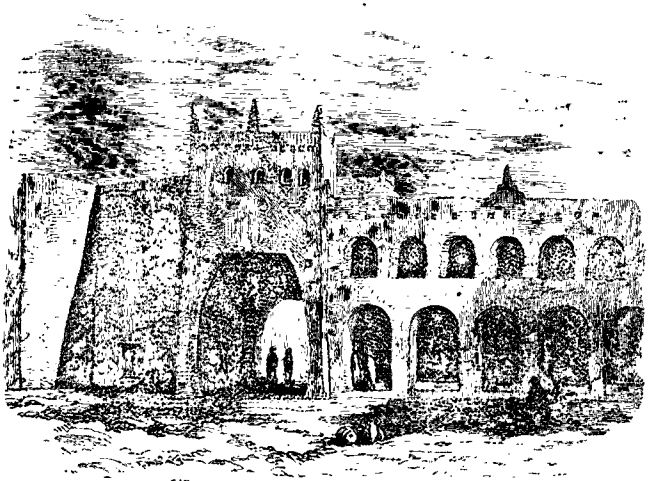
Board of Health, enclosed within the outer wall of the city. To the eastward were the ruins of a portion of the place. The history as recounted by the kadi was that for generations Guerrara had been split into two factions, who quarrelled and fought as incessantly as Highland clans.

At length, some fifteen years since, owing to a murder, the feud broke out more fiercely than ever. After some days' fighting, during which from thirty to fifty men were daily slain, the eastern faction was driven out, and their quarter sacked and destroyed. The outcasts led a vagabond life for some years, but at length returned and made overtures, when it was arranged that they should dwell peaceably in the city and resume their gardens, which the conquerors had not been able to keep in cultivation, and many of

which now lie hopelessly buried under the drifting sand. The returning faction stipulated for the perpetual right of electing the second kadi, or vice-president of the djemmâa, and the two chiefs who were sitting on our carpet sipping their coffee side by side were actually the leaders at that time of war and slaughter, the scenes of which they were recounting with zest and humour for our edification. The chief kadi was a keen long-nosed dignitary, with high forehead and well-curled moustache and beard, eminently well to do. He was a rich man for the country, being the possessor of 20,000 palm-trees, which would produce an average annual income of 1600*l.* sterling. His former enemy and present colleague was a large bluff-featured fellow, honest and straightforward looking, but evidently no match for him either in war or diplomacy.

The place is by the bed of an absent river, the Wed Zigrhir, but in position and appearance very different from the other M'zab cities; not, like them, on the side or top of a bold eminence, but on a gently rising mound crowned with the usual semaâr tower, and the houses extending over the plain on both sides, exhibiting mud-brick buildings, with a slight admixture of stone architecture in every period of progress and decadence. Our little street opened on the grand square, one side of which was occupied by the djemmâa or parliament-house, a building of some pretension. On the opposite side was the main inner gateway of the city, while double rows of arcades and market-stalls occupied the two remaining sides.

Though many of these arcades were composed of sham arches of palm-stems plastered over, yet the Guerrarans really understand and apply the arch, a proof certainly of more than modern Arab civilization.



GATEWAY OF GUERRARA.

To face page 182

In many places the resemblance to Egyptian architecture was interesting, especially when combined with the similarity in shape of their vessels, jars, and household utensils to those of ancient Egypt; while their tradition is, that they came through that country, and remained there some time. Though inferior in execution, their buildings were superior in design to those of Ghardaïa; and here alone we observed machicouli galleries in the gateways. The porticoes and peristyles of mosques and towers leant inwards, after the fashion of those of the Egyptian temples; and the marabouts, instead of having their tops domed, as among the Arabs, were brought angularly to a point. All the graves were covered with urns, pottery, and drinking vessels, most of them unused, and many with a ram's horn stuck upright in the neck.

We entered one marabout tomb, the door of which was not locked. Inside the square dark building were five raised graves, covered with domed masonry, about 18 inches in height, and at the head a slab of undressed stone. In the centre was a solid square tomb, about 5 feet high, before which, in a niche in the wall, was a flickering oil-lamp burning, and suspended from the centre of the dome a ragged collection of fragments of variously coloured stuffs, a sort of votive offering. Other tombs of great men were complete little houses, with many chambers, but all closed and dark, in which prayers are offered by the family on stated occasions, and on the anniversary of his decease the virtues of the departed are extolled, and a largesse doled out, as described at Ghardaïa.

To turn from funerals to weddings: we met a marriage procession on our way homewards. The bride was, of

course, invisible, and the chief characteristic of the affair was the noise of drums and tomtoms, while all the old firelocks in the place seemed to be put in requisition; and from 10 A.M. till noon an incessant fusillade was kept up on the walls, followed, of course, by a noisy zickar and dance in the evening, with a bonfire. Thus the same ceremonies for this festive occasion prevail in Central Africa as in Northern Europe.

The gardens of Guerrara, which are rather to be called scanty open palm-groves, are very different from those of Berryan and Ghardaïa. There are few other fruit-trees, and less variety of vegetables; turnips, carrots, and pumpkins being the usual crops. But by far the largest portion of the soil is laid down to barley, just now rising 3 or 4 inches high. There are wells in each garden, similar in construction to those of other M'zab oases, but comparatively few of them are in daily use; and instead of the palms having trenches round them for frequent watering, they are planted high on the top of a small mound, with a deep pit dug round each. The reason is that the rains are here regular and abundant, from what physical cause I could not ascertain, and the cultivators depend much on the supply from the skies, which is caught in these pit-like trenches. The inferiority of their culture is marked by the want of vigour in the plants, though not by the quality of the dates. The sand on the surface is much looser than elsewhere, and it is marvellous how even barley can find sustenance in such a soil. The heat, however, is greater than in the Wed M'zab, and our thermometers ranged night and day from 62° to 75° Fahr.; the glare in the sun being very trying, while the nights were close and oppressive. The great difficulty with which the Guerrarans have to

contend is the rolling sand, which is continually swallowing gardens and choking wells, and which it requires unremitting labour to repel.

Our appearance and habits seemed to excite greater curiosity among the Guerrarans than elsewhere, or at least they were at less pains than their neighbours to repress their inquisitiveness. Their women even would stand and gaze in the doorway, exhibiting a different style of personal decoration from the other M'zab ladies. Here they daubed the knots of their black hair with red paint, while the patch on the forehead and tip of the nose was always black instead of red, and there was a circular gold ornament, the size of a half-crown, fastened in front of their hair.

A negro dervish was one of our constant sentries. He would stand for hours immovable while watching our domestic arrangements. He oiled his black skin every morning, and had his woolly hair worked out into long tags. As he smoked in public, we could not divine wherein his piety consisted, except in doing nothing, and silently insisting upon alms.

P.'s fame as a hakeem, having spread, contributed not a little to swell the number of our visitors. One man came to be cured of scaly elephantiasis, bringing with him a huge wooden bowl to hold his medicine. Another, who had lost the use of his leg from a gunshot wound twenty years before, was grievously disappointed, and almost indignant, that Hakeem Ingleze would not restore the limb.

Our kadi's visits were overpowering, and perhaps politely aggressive on the coffee canister. At dawn he entered to say good morning, and continued his sabelkheers and handshaking through the day, making himself at home on our carpet. Before each meal he came

in to inspect the kouskousou, and see if it were good; and we were not a little amused by his sitting down after dinner behind the pillar, and helping our servants to finish the great bowl. However, he did not usually call empty-handed. One time it was barley for the horses, next four fresh eggs, then some soured milk; and one day he was indeed welcome, when he brought me a horseshoe for Gazelle, who had lost one of his by Achmed's carelessness. This present, and five nails therewith, was really a relief, for there was not a smith or farrier within the city; the Jewish jeweller, who usually acted as such, being away at Tuggurt, a distance of six days' journey.

About three days after our arrival a caravan came in from Soudan, and one of its guides visited us in the evening by invitation. He was a goodlooking, eagle-eyed Arab, with a very restless glance, which might be interpreted as either a habit acquired by living in constant danger, or as the manner of a man inured to reckless crime. I fear his general expression might be taken to support the latter hypothesis. He had been lately employed by Captain Carosse and Sidi Hamza to purchase in the desert the curiosities sent to the Governor of Algeria as presents from the Touareg, but which are generally said to have been forwarded by Sidi Hamza, simply to ingratiate himself with the French. So much for the submission of nomad tribes. The man brought with him a number of Timbuctoo and Soudan articles for sale—loose blue cotton trousers, dromedary (mahari) saddles, fez caps, elephant-skin jars, sandals, negro bowls, dish-covers, &c.

After purchasing sufficiently to put him in good humour I set him down with his pipe to describe to us the caravan routes. As I sat on the carpet, and he on the sand in

front of me, he drew very fair maps of the routes on the ground, explaining their relative distances in days' journeys, and giving their respective bearings with considerable accuracy, which I was able to test by the maps spread by my side.

He described Ghadames (or R'dames, as the French write it), a solitary oasis fourteen days south of Tripoli, and the same distance east of Souf (well known to all readers of Richardson or Hamilton), as the first great rendezvous of merchants from the interior, and the most interesting of the oases to visit. It is inhabited by Arabs, who pay a heavy tribute to the Touareg, and is the residence of an English and Turkish consul (the former at that time Captain Dickson). It is enveloped in palm-groves, and is divided into two factions, who are frequently at war with each other. In the middle of the city is a large square, in the centre of which is an abundant perennial spring. Here all transactions are carried on, but the Arabs of the one side and their negroes must not enter the quarter of the opposite faction on pain of death.

My informant had been in the habit of conducting from Touat to Ghadames caravans of slaves, ivory, gold-dust, indigo, cotton, and silk. On the whole route he assured us there is but one well, and that uncertain, and the surface of the line of march composed of unvarying loose deep sand. Each traveller should have three or four camels for water and provision, and get a safe-conduct from the Touareg chiefs; and even then every member of the convoy must be well armed, and the body strong enough to resist the hordes of independent freebooters. He did not consider that there was any danger from Souf to Ghadames, but much more from Ghadames to G'hat (the Wady

Graat of our old geographers). The Touaregs on the western route, from the M'zab to Touat, he looked upon as less bloody than their eastern fellows, but as more unprincipled robbers.

From Waregla to Touat the caravans make fifteen days also, but there is only one well (El Gobab) on the whole route, and that generally dry. Touat is a mere district like that in which we were, with small oases at distances of from half a day to three days' journey apart; each with wells and palm-groves, but no fountains, and inhabited by a mongrel race, the negro type predominating. They appear to form a confederacy after the fashion of the M'zabs, but without their system or local organization. But I shall have occasion to speak further of Touat hereafter.

From thence to Timbuctoo, the line our guest had usually taken with his caravan, he stated to be two days' journey, with two unfailing wells on the route, and several others which can generally be depended on. On one occasion he had only once had to travel more than five days without finding water, but that one exception, as we elicited, occupied thirteen days. Aïn Bir, a sure well, is only three days south of Touat. He offered himself as a guide to Timbuctoo *via* Touat, if we could get a letter of recommendation from the French government to commend us to the Touareg, and seemed to think the reaching Timbuctoo by this western route no difficult enterprise for an European. To attempt it from Mourzouk he thought to be impossible without an army, and naïvely added that there an army could not live.

But though he could engage to find safe-conduct to the outside of the negro city, there his suretiship ended, and it was not likely that any white man could safely explore the interior. One Frenchman had penetrated so far

when our informant was a boy, and he had heard of him, but had never seen him. Dr. Barth had been in Timbuctoo during his last visit, but not in the same part of the city, neither had he seen him. In fact, the caravans themselves appear to be kept in a sort of quarantine prison during their whole stay. I must confess that nothing less than the sense of duty, and the recollection of home ties, would have deterred us at this time from attempting to go as far at least as Touat, when so favourable an opportunity presented itself.

Whether the rumour of a contemplated expedition to Touat had alarmed Achmed, who had tasted sufficiently of the sweets of desert travelling, I know not, but he soon began to show symptoms of a determination to leave us: and, at last, on his dignity being offended by my rubbing down the horses, an office he declined to perform himself, he demanded a "règlement" before the kadis. As he had become worse than useless, P. advised the doing of this at once. First of all, Achmed's agreement in Arabic was produced and read, by which he had no right to leave without a month's notice. This point I waived, while Achmed strutted and exclaimed that he was neither slave nor soldier to march against his will. Omar acts in a general way as interpreter and attorney for the household. P. on the roof, pipe in mouth, acts "Deus ex machinâ," looking down on the area, and occasionally mingling with the din of the belligerents a modicum of counsel to me in English. The second kadi sits scratching his head, while the chief, enthroned on P.'s couch, hears all parties, and vociferates incessantly the while. I endeavour to combine the energetic with the dignified, while Achmed is very mulish, Omar bewildered, and the kadis temporizing. At length I tender the full wages to the month's end,

which Sancho pockets, but refuses to give a receipt. There is more clamour, and he seizes his sheepskin bundles and carries them off, with the two kadis at his heels threatening the vengeance of the law. In the evening he returns very penitent, and we find the kadi had fined the householder who harboured the goods five dollars. But Achmed now demands compensation for the loss of his ass, and twenty dollars for his sufferings by the way. I promise him the price of the ass if he stays out his time, at which he turns obstinate again. The kadis in vain tender the prospect of a compromise and Achmed is finally dismissed; a record of the transaction is duly signed and sealed by the two officials and handed over to me, and two sehaurs, with whose language we are unacquainted, are engaged as our new grooms.

One evening the kadi came to coffee and tea by invitation, as he would have come inevitably in any case, bringing with him a venerable old man, "the oldest inhabitant," from whom we were to learn the early history and traditions of the nation. The business commenced by our exhibiting cotton picture-pocket-handkerchiefs, needle-papers, boxes of tools, knives, and scissors, and judiciously ingratiating ourselves by presenting him with samples of all he chose. Indeed the care he showed in unknotting from a cotton handkerchief an old pair of villanous French scissors, carefully cased in red leather, attested him to be a connoisseur in cutlery. The result of my interrogatories is embodied with other information in the next chapter.

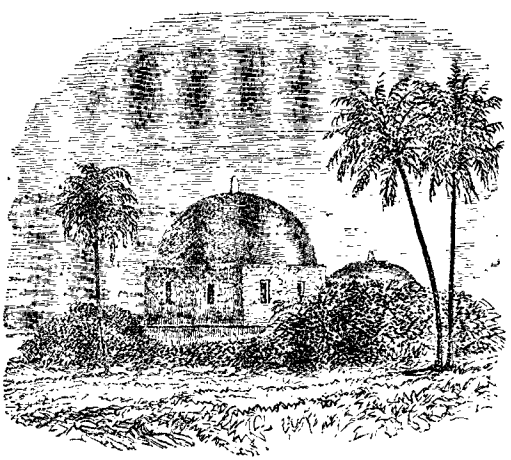
It was a curious scene to observe the keen-eyed M'zab cross-legged on the carpet, eyeing his presents and then peering at me; the old man by his side, but a little retired, only venturing on the edge of the carpet, and enjoying his pipe behind the screen of a tent hung up

for a curtain; Omar sitting at the other end to interpret; P. smoking motionless in the corner, but taking all in; while I sat opposite to the kadi with pipe and coffee-cup, making occasional notes on a flat board, left as if inadvertently on the floor by my elbow, or snatching an opportunity to jot down a name or a date on the scrap of paper almost behind my back, and meanwhile using my pencil as a pipe-stopper. We had long since learnt that there is nothing of which these people are more jealous than "a chiel amang them takin' notes,"—nothing which they look upon with greater suspicion than any cross-questioning about their history. In fact, to write in their presence is almost a mortal offence. However, the chief was too well pleased with his presents to be censorious; and the old man was well content to meet an Ingleze. He had been in Egypt, on his way from Mecca, at the time of the battle of Aboukir, and a gleam of exultation passed over his features as he recounted how he saw the English avenge the battle of the Pyramids.

Our conference was resumed the following evening, and the next day we departed, having enjoyed nearly a week's hospitality. Our next halt was to be at Waregla. It is a dangerous road, and cannot be safely traversed after nightfall. The kadis repeatedly warned us of the necessity of being constantly armed and watchful, and our party, both of men and camels, was considerably increased. We mustered thirteen camels, six horsemen, and five footmen—a well-armed party, sufficient to resist any ordinary predatory band if they would stand fire. A slight attack of ophthalmia had taught me the necessity of wearing crape goggle-spectacles, and a broad-brimmed wide-awake under my fez. In this guise, with red girdle and broad leathern

pistol-belt over it, and three ammunition pouches attached; long spurs, leather-covered trousers; shot-belts, game-bag, and double-barrel, all slung across my shoulders, I must have presented the appearance of a Texan bush-ranger, partially orientalized. P., who never donned the burnous for ordinary wear, maintained rather the correctness of style of a Turkish officer, for which he was generally taken.

Having sent our camels and baggage to the outskirts of the oasis to water long before dawn, we waited till after sunrise for the company of the kadis, who, well mounted on grey Arabs, escorted us for a couple of miles through the mud-walled lanes of the oasis. On reaching the open we found that our incorrigible Arabs had sat down and never thought of filling the skins



Marabout near Guerrara.

until they saw us approach. Here was a delay of another precious hour, but at length the last water-skin was loaded, and our kadis, as we entered the gravelly

desert, kissed hands with us and departed, with many regrets expressed, on their side and certainly felt on ours.

Well may we be sorry to leave the M'zab. They are a mild, gentle race, evidently wholly distinct from the Arabs, with nothing of Ishmael in their face, habits, or language. They are more like the Jews, yet very different from them in contour and in many peculiar traits—living on fruits, fruit-buyers and sellers; loving quiet, disliking Bedouin wildness; unimpassioned, calculating, money-loving, shrewd, and careful. They have the reputation of being an honest race, and so they are, yet they prudently keep to the maxim, "Safe bind, safe find." No man ever goes abroad without his ponderous polished key, or a brace of them, in his hand; or in default of iron he uses a yard of wood. They have the reputation, well merited, of being a hospitable race, but prudently know the limits of hospitality, and the quality of the kouskousou deteriorates in due time. They have the reputation of being rigid in their observances. Coffee and tobacco are against their creed; yet they never refuse coffee from a stranger, nor do they decline to smoke when they like tobacco and are unseen by their inferiors. They hate warfare, and never carry arms at home. They delight in music. At Ghardaïa pipe and tomtom used to alternate with the zickars of the sacred city of Mellika and the echoes of the drums from the neighbouring heights of Bounoura; but at Guerrara, from tower and garden, cemetery and palm-groves, the din of the tomtoms was incessant, midday to midnight, midnight to noon again.

In many points they are like the Scotch,—in their love of country and their readiness to wander from it; in their clanship abroad and their promptness to help their

countrymen; wedded to their own form of Mohammedanism, and anathematizing all others.

They are the very Venetians as well as the Swiss of North Africa, travelling everywhere, penetrating from Timbuctoo to Asia Minor, serving in all sorts of capacities, connected with every caravan in Africa on the highway from its central and unknown regions to Morocco, Tunis, Algiers, and Egypt; possessing vast herds of camels, which are let out everywhere; with a free and republican form of government, highly artificial, but coloured in some respects by a theocracy; the young men nearly all abroad, but invariably returning with a competency in their old age to their poor and barren, yet cherished country. They are reserved and cold, but integrity characterizes their commerce, truthfulness their conversation, and morality their domestic life. In fact, as a French officer, who was expatiating on the contrast between them and the Arabs, once exclaimed to me, "They are the very Protestants of Mohammedanism."

CHAPTER XII.

HISTORY AND INSTITUTIONS OF THE M'ZAB.

History of the M'zab — Herodotus — Greek and Roman traditions and reports — Gætuli and Melano-Gætuli — Touareg — Distinctness of language — Arab tradition — Jewish tale — Legends among the M'zab — Historical facts commence only with emigration from Oran — Temporary colony at Waregla — Berryan and Guerrara — Customs — Religious peculiarities — No dervishes — French interference — Form of excommunication — Shame wiped out in blood — Poor-laws — Public works — Taxation — Industry — Obstinacy — Freemasonry.

THE early history of the M'zab, as of the other sedentary inhabitants of the Sahara, is lost in the mists of tradition. Although they all preserve traditions of their early settlements, yet, in comparison with most of the races which now inhabit Europe and Northern Africa, they may be looked upon as aborigines. Herodotus (iv. 197) speaks of four races as inhabiting Africa: "Two of these are aboriginal, and two not. The Libyans and Ethiopians are aboriginal; the former inhabiting the north, the latter the south, of Libya. The Phœnicians and Greeks are foreign settlers." Among these races Herodotus could not include the Arab tribes, who now form the whole nomad population of Northern Africa, but who immigrated at a later period. The dwellers in cities on the northern coast, the Moors, settled in the country still more recently.

Pliny more exactly defines the Gætulians as those peoples who inhabited the country between Mauritania and the river Niger, placing the Ethiopians, or negroes, south of this (v. 4). His Gætulians then must be comprised under the Libyes of Herodotus.

Sallust (Jug. 181) distinguishes between the Gætuli and Libyes, placing the former in the southern portion of the Sahara; and, again, Ptolemy subdivides them into Gætuli and Melano-Gætuli—these latter probably being the mingled race of whites and negroes (iv. 6). If any of the aboriginal blood remains, it must evidently be sought among the stationary, not the nomad tribes of North Africa, excepting always the Touareg, whose wild habits and wilder domains have resisted all Arab aggression.

The Touareg may very possibly be the Melano-Gætuli of Ptolemy; for though Lyon describes the Touareg of Fezzan to be nearly white, yet I conceive him to speak by comparison, as all those I have seen in the west, though answering in all other respects to his description, in being tall, handsome, and of dignified and independent mien, are certainly of a very dark brown, almost black, but without the slightest approach to the negro physiognomy.

The Libyans then of Herodotus, and the Northern Gætuli of Pliny and Ptolemy, must be sought among the Berbers or Kabyles, M'zab, Wareglans, and inhabitants of the Wed R'hir chain of oases.

These four speak distinct dialects, but all are branches of the same, or Berber family. The Touareg, whom Heeren affirms to speak the original Berber, I found to be quite unintelligible to Kabyles, who are able, without much difficulty, to interchange some ideas with Mozabites and Wareglans. On the affinities of these languages I do not venture to pronounce, but leave that to philologists: I can only state from experience, that the four vernacular dialects of the Sahara are more or less mutually intelligible; while Kabyles, Wareglans, and Mozabites alike, in conversing with

the Touaregs, always appeared to prefer the Arabic, a language foreign to both, or else made use of professed interpreters. The type of the Touaregs too is very distinct from that of any inhabitants of the oases. May we not, therefore, set down the Touareg as the Melano-Gætuli of Ptolemy and the Gætuli of Sallust; and the inhabitants of the oases as the Libyes of Herodotus and the later writers?

It is seldom easy to draw an accurate line between conterminous tribes; but habits, language, and latterly religion, seem to have preserved the Touareg from the slightest admixture with their northern neighbours. The locality of the Garamantes is so clearly defined to be south of Tripoli and the Syrtes, that they may be excluded from the consideration; but Dr. Shaw (1, 143) holds the M'zabs, Wareglans, and Wed R'hir to be the representatives of the Melano-Gætuli, a supposition which I can scarcely conceive the Doctor would have maintained had he been personally acquainted with these nations.

The Kabyles, or Berbers, are now generally admitted to be the descendants of the ancient Numidians, driven by successive waves of conquest into their mountain fastnesses; and if we take the inhabitants of the oases, very different from them in physiognomy, as the representatives of the Libyes of Herodotus and the Gætuli of the Romans, we have all the interior races of Western Africa, as described by classic authors, satisfactorily accounted for. There is a marked difference, however, between the type of the M'zab and the other settled tribes. They are generally taller, the cheek-bone is more prominent, the lips not so thick, the eyes more closely set, and the nose larger, not so aquiline, and very broad at the tip. While it would be

difficult to distinguish between the inhabitants of other oases, different as they are from either Arab, Kabyle, or Touareg, a glance will suffice to point out unmistakably the son of M'zab.

It is the less difficult to draw a very distinct line between the aboriginal and the immigrant races of the Sahara, from the fact, that not only have their habits remained perfectly distinct, but also, that, while many Arabic expressions have been engrafted into the primitive languages, their structure has remained essentially Berber. It does not seem possible to maintain that any of those tribes which now speak any of the languages distinct from the Arabic can have had any considerable admixture of Arabian blood. The wandering habits of the nomads, and their constant intercourse with the mother country, have combined with the Koran to preserve the tongue tolerably pure, the Mogreb Arabic being, even in Western Morocco, at worst a corruption of Arabic. There are tribes claiming Arab descent who speak Berber dialects, but their language seems decisive in negativing their claim. It is scarcely conceivable that those who above all others pride themselves on speaking the tongue of the Prophet, should ever, while surrounded by their brethren, have relinquished it for the language of the conquered people; and this, independently of their physiognomy, appears an irresistible argument against any claim of the M'zab to be held as descendants of Ishmael.

Respecting their origin there are three traditions current. One, that of their Arab neighbours, is that they are a section of the Berber race of the Atlas, driven out of their country on account of their schism from the common faith of Islam, and who thereupon fled to the country they now inhabit, protected and

impregnable from its isolation, its conformation, and its barrenness. Against this, however, it may be replied that, besides the distinct type of features which separates them from the Kabyles, there is pretty good proof of their existence as a separate people before the Arab invasion or the Berber domination. Most authorities agree with Dr. Shaw (1, 99) that they are probably alluded to by Herodotus, and certainly in the earliest period of the Roman occupation by Pliny and Ptolemy.

The name M'zab has been said to be Punic, derived from "Am," which signifies nation, and "zab," meaning similar, from the likeness of the configuration of the two countries. This derivation must probably, however, be rejected as fanciful.

The Jews, again, maintain the M'zab to be the lineal descendants of the ancient Moabites, of whom a portion emigrated to the west, and they found this assertion upon the alleged connexion between their language and the Hebrew. They state, with what correctness I am unable to say, that, whenever the M'zab language differs from the Berber, it is Hebrew; and that its inflexions and grammatical construction closely resemble the latter. As far as I could ascertain while in the country, the affixes of the M'zab are only like the Hebrew when this resembles the Arabic, and I could not make out the existence of prefixes like the Hebrew in the construction of their verbs. But there does actually exist at present, on the coast of Zanguebar, in the neighbourhood of the Djebel Nefous, a numerous people, the Weled Hammam, whom the Jews assert to be the children of Ammon. The M'zab claim kindred with this nation, and have been accustomed for several ages, after performing the pilgrimage to Mecca, to go to this country, a journey of thirty days south of the

Red Sea, in order to visit their brethren. I have conversed with several Mozabites who had accomplished this expedition, and who assert that the affinity is as universally acknowledged by the Weled Hammam as by themselves.*

Their own tradition, which I received almost in the same words both at Ghardaïa and at Guerrara, is, that the name of their founder was Messab, the brother of Hammam, and fourteenth in succession from Noah. This certainly points us to the Jewish tradition, or it may be derived from it. Their original seat was on the north-east coast of the Red Sea, but constant feuds with the Wahabees compelled them to leave Arabia, after remaining some time near Jeddah, in the reign of Seïd, Sultaun of Arabia. They do not hold Messab to have been nephew of Abraham, but collaterally related in a more distant degree. His father, they say, was Jabir ben nou Dzidin, *i. e.* "The light of the faith." The earliest aborigines of North Africa they call Hharrar and Hh'mein, and with these they were for ages in a state of constant warfare; but the date of their arrival is lost in antiquity, although they remained for several generations in Upper Egypt, and gradually worked their way to Morocco.

A portion of the race settled in the island of Djerbi, between Tunis and Tripoli, where they still remain. The main body, however, seem to have forced their way to the district on the frontiers of Oran and Morocco, where they settled under a king named Liman

* The language of prophecy is most distinct on the ultimate restoration of Moab. See Jerem. xlviii. 47—"Yet will I bring again the captivity of Moab in the latter days, saith the Lord." If Moab, then, is to be restored, the exiled race must exist somewhere or other distinct and separate, as do the M'zab of the Sahara.

Fleah, whose dynasty, under the title of Baba, ruled for several generations. Baba is the common term of respect among the M'zab, as Sidi, the "Cid" of the Spanish romances, is among the Arabs.

They state that their ancestors at this time were Christians—probably Arians; but that about A. D. 777, Hegira 160, a Persian upholder of the fifth sect of Ali, by name Abder Rahman ben Roustum, came and settled himself at Tihret, a city in the plain of Egh'ris, between Mascara and Tagr'hemet, then the metropolis of their nation, in the modern province of Oran. They had by this time mingled much with the Berbers, as may be seen by the patronymic of the "Beni Berber" among the inhabitants of Beni Isguen (*v.* p. 167). From Abder Rahman they accepted his form of Islamism, and in consequence became the objects of incessant persecution from their Berber neighbours, who had previously joined the Moslem sect of the Maleki.

In the year A. D. 971 they were finally driven from their country, and settled themselves at Waregla and the desert-country to the south of it. Here they founded several K'sours, or artificial oases, now lost, among which were Kerima, Sedrata, and Djebel Enbad. But the aboriginal Wareglans, with whom at first they had been in alliance, actuated by the same bitterness of sectarian jealousy which had already made the M'zab exiles from their homes, soon harassed them with such inveteracy that they were compelled to prepare for a second exodus.

They relate that for several years they sent scouts in various directions to discover a country which should be isolated, possess water, and be four days' march from the nearest well. Their spies found a spring at the surface in the ravine now called the Wed M'zab, and several years were occupied in sinking wells and plant-

ing palms in preparation for the emigration. All this was carried on without the slightest suspicion of their design on the part of their neighbours. The spring which had at first attracted them disappeared for ever soon after the sinking of the wells. For some years they dwelt in tents, but at length (A. D. 1012, Hegira 402), El At'f, their first city, was founded, and Ghardaïa about forty years afterwards.

In their present country they have dwelt unmolested for 850 years, protected by their isolation from all inhabited countries, by the barren desert which surrounds them, by the sterility of their soil, and by the rugged mountainous configuration of their country, which makes it easily defensible against the attacks of Arab Goums or cavalry.

Besides their five cities in the Wed M'zab, they extended themselves at an early period to Berryan and Laghouat in the north, and established a third colony at Metlili in the south-west. This latter was afterwards conquered by the nomad Chaamba, as before related.

Guerrara was only built in A. D. 1666, by the descendants of the expelled colonists of Laghouat. It would appear that for several centuries Laghouat had been divided into three quarters, inhabited respectively by the Arabs, the M'zab of Berryan, and those who are now of Guerrara. About A. D. 1510 the two former united in a plot for a general massacre of the latter sept, which was to be carried into execution on a certain day. The Guerrarans, apprised of the scheme, departed before daybreak, with bag and baggage, flocks and herds. The Arabs, having an appetite for slaughter, now fell on the Berryans, whom they accused of having betrayed the secret, massacred some, and sent the rest naked and starving into the desert.

Here, after three days, they fell in with the caravan of the Guerrarans, who, returning good for evil, gave food and water to their would-be butchers, and all settled for some generations at Berryan, till their emigration first to Sehg el Hamra, which they finally, on account of the failure of water, deserted for Guerrara.

The M'zab are held in detestation by the Arabs as religious schismatics, though holding the same doctrines as other Mussulmans, the differences being rather in the Semmâa or religious practices. They are very strict in their discipline; all sin is held to be impiety, and there is no pardon hereafter for the man who has died in a state of sin. They, like the Jews, wear particular robes for prayer, which they never put on for the ordinary affairs of life. Every species of luxury and superfluity is forbidden amongst them, and hence the prohibition of smoking, snuffing, and coffee. Belonging to the sect of the assassin of Ali, they are excluded from the four acknowledged sects, and termed Khramsiá, or the fifths, which has become a word of great contempt and reproach. Though tolerated in Algeria, they always pray apart in their mosques, and do not mingle with any other followers of the Prophet.

They have no Khouan or religious orders, and look with great contempt on dervishes. Yet their "Tolba," or priesthood, form a class distinct from the "Aouam," or laity, and are distinguished by the absence of the camel-hair cord round the head. Their life is austere, and they are mainly supported by the revenues of the mosques. Their power has much diminished since the submission to the French, who have steadily refused to ratify the election to the highest posts of any talebs, and hence they head the party most opposed to the Franks. The Tolba elect the Sheik Baba, or religious

chief, who is ex-officio President of the Assembly, and they supply also the officers of the mosques, viz. the Imaums, who perform prayers; the Mueddin, who call to prayer; and the Oukeel, who are the custodians of the treasury. The revenues of the mosques are considerable, derived partly from small endowments in land, partly from the fines inflicted for offences, and chiefly from the donations of the faithful.

The civil government of the M'zab appears at their first settlement to have been under an Imaum, who united the spiritual and temporal authority. At a later period each city formed a separate republic, governed by an elective council or djemmâa, which exists to the present day. The number of each djemmâa varies from four to twelve, according to the population or number of heads of families who compose the district. The President is in all cases the Sheik of the Tolbas, representing the ecclesiastical element, and in his absence the council is powerless for legislation, though it can transact executive business. The French have, however, introduced another element, by confirming the appointment of a lay or military kadi, who is responsible for the payment of the annual tribute, and with whom alone they communicate. A negro called the Oussif el Djemmâa is the only paid official among the M'zab, and is deputed to execute all orders, and to take charge of the entertainment of strangers.

Immorality or excess is punished by the tolba by a kind of excommunication called "Tebria." This sentence cannot be passed till after several warnings. The man who has incurred it is incapacitated from entering the mosques or voting in the election of the djemmâa, and is debarred from all civil as well as religious privileges. He can only be restored to communion on proof of his

good behaviour and repentance, and after several ceremonies. The nails of his fingers and toes are pared very close. He is shaved, rubbed all over with warm grease, and then washed from head to foot. These preliminaries undergone, the penitent presents himself, with his hands crossed over his breast, before the djemmâa, presided over by the Sheik Baba, and exclaims, "Ana men Allah, ou men ektaïbin," *i. e.* "I am one of the children of God, and of the children who repent." The Baba then reads over him the "Fattha," * and gives him absolution, when he is restored to his privileges.

The djemmâa appoints one or two members, who attend at the public assembly every Wednesday, or oftener if requisite, for the transaction of ordinary business, the whole assembly only meeting for more important matters. Every adult who possesses a house and establishment of his own, and is not disqualified by crime, has a vote in the election of the djemmâa; but as the members, though holding nominally an annual office, are rarely changed, this annual election is, for the most part, a matter of form.

There are two political parties, one of which leans to the French, and the other looks to Morocco, as affording the most promising outlet for traffic. The former are at present in the ascendant. The politics of the M'zab are unmistakably commercial, and such questions are discussed among them with all the vigour of a free-trade debate fifteen years ago in England.

For external politics there is a federative djemmâa, which meets only at Ghardaïa, under the presidency of the Sheik Baba of that city, who is the only non-elective member. This assembly meets four times

* Fattha, *i. e.* the first chapter of the Koran.

a year, and by it all questions of foreign treaties, subsidies to the French and the Touareg for the safe-conduct of caravans and freedom of commerce, and the like, are discussed. This convention also takes cognisance of any crime committed by a Mozabite in foreign countries which is likely to bring discredit on the race.

Like other Mussulmans, the Beni M'zab may have four wives, who are strictly veiled, and more sparing of their charms than the Algerines, as they only show one eye in the street instead of two. Adultery is severely punished. The guilty woman is confined for three months in a solitary cell, without window or door—bread, dates, and water being pushed in every day through a hole, but only in sufficient quantities to preserve life. At the termination of her imprisonment she is banished the country. Her accomplice is severely beaten, fined 100 Tunisian dollars, and immediately banished.

None of the public immorality so horribly common among the Arabs is tolerated by the M'zab. Not that they are scrupulous as to the means of putting down "nefas per fas aut nefas." A woman of the M'zab had three or four years since brought scandal upon her race by her notorious life at the Arab town of Bokhari. The djemmâa of Mellika, to which city she belonged, determined upon effacing the stigma in her blood. She was accordingly assassinated by an emissary sent on that errand. The affair coming to the ears of the French authorities, the man was arrested upon his return, and sent to Algiers for trial. The Kadi of Mellika was also included in the indictment, but could not be found. The evidence, though very strong, afforded some loophole for "extenuating circumstances," and the murderer was condemned to a year's imprison-

ment and a fine of thirty thousand francs. The fine was at once paid by a voluntary rate on the inhabitants of his city, and he returned home shortly after our visit to be received as a martyr.

The rule of inheritance is the same as among other Mussulmans. When the deceased has left no near relations or adopted heir, his goods revert to his sept, and are divided by the state.

Any person in distress has a right to support from his natural heirs, and if he has no relations his clan are bound to maintain him. Begging, so common elsewhere, is forbidden as a crime.

The code of criminal law is founded on the decrees of the djemmâa from time to time. The punishments are chiefly fine and imprisonment. The punishment of death is unknown to their laws, perpetual banishment being the heaviest penalty recognised.

For all public works—as walls, wells, aqueducts, &c.—labour is exacted from the whole community, or may be commuted by a fixed payment. These payments are deposited in a separate chest in the mosque, and, under the superintendence of a mixed commission of tolbas and civil members of the djemmâa, are applied to the public expenses.

All taxation is direct, and is levied on houses, gardens, palm-trees, and heads of camels. Every man who pays house-tax—which is the most considerable impost—is thereby exempted from payment on his first six palm-trees or six camels.

Of the industry and perseverance of the M'zab, beyond all other Moslem races of North Africa there can be no doubt. The character has perhaps been forced on them by the sterility of their tropical Switzerland. Their boys at six years old are, by law, compelled to

begin to work, either in driving a camel or ass, or in drawing water for the gardens. Horticulture forms the chief home-occupation of the men, while the women are most assiduous weavers from their infancy.

But, as it has been already observed, only a fraction of the population remains at home. In every city of the Barbary coast is to be found a colony of the Beni M'zab, united in a guild under an "amin," or civil chief, and possessed of special privileges. This guild is responsible for all debts of any member of the body, and often possesses peculiar privileges and monopolies. At Algiers it formerly held a monopoly of the Turkish baths and the butcher's trade, granted as the reward of the devotion and heroism of the M'zab residents, who, when the city was besieged in A.D. 1541 by the Emperor Charles V., advanced from the gates in procession, disguised as women, and so, coming within the enemy's lines, on a sudden threw off the mask, and, after a desperate hand-to-hand combat with swords and pistols, retained possession of an advanced work which the Spaniards had raised against the south side of the city.

The Arabs, while acknowledging their valour, exhibit their aversion to them by terming them Moslem Jews, and denounce them as an obstinate, headstrong, and quarrelsome race. In illustration of this characteristic I may recall the following anecdote:—An inhabitant of El At'f had brought several kinds of garden-seeds from the Tell, and among them those of a species of pumpkin. These produced a fine crop, and were exhibited to the djemmâa, who determined to give a special name to the plant. After several stormy meetings some voted for the name of Tamissa, others for that of Takhessaït. Neither being willing to give way, the city was divided into two parties, and, the discussion waxing

hot, they came to blows. Although it is many generations since this occurred, it is impossible, at the present day, to utter the word "Tamissa" to an At'faoui, or descendant of those who voted for Takhessaït, or *vice versâ*, without being considered guilty of a marked insult.

It is said that the M'zab are all banded together in a secret society. I have met many Arab masons, both in Algeria and Tunis, among the chiefs of high degree; at least there are several of their signs which correspond with those of European masonry, though the attached traditions are very different. But though I frequently made the attempt, I never discovered any kadi among the M'zab who was able to recognise or respond to true masonic signs.

I dared not have incurred the risk of wearying my readers with so prolix and detailed an account of the M'zab, did I not feel convinced that we have too generally been in the habit of classing all the tribes of Northern Africa as very nearly allied, and that we seem to have in this people a race which stands out distinct from all others in religion, in habits, in political constitution, and in physiognomy; and therefore well merits more accurate investigation than has ever yet been accorded to it.

Isolated rock near Guerrara.

CHAPTER XIII.

Stony desert — Wed N'ça — New plants — Caution in camping — Story of a midnight attack — Asleep on guard — Threatening clouds — El Guentra — Landmarks — A homesick boy — Hardships of camel-drivers — Wed M'zab — A night alarm — Preparations for an encounter — Friends after all — A friendly chat — First sight of Waregla — Rumours of war — Descent to the oasis — A saint's revenge — Halt at the gate — Sidi Zobeir — An Arab aristocrat — A feast — Public toilet — Ride through the city — Ruined palace — A costly Sultan — History of Waregla — Jews — Old coins — Gardens — Attempt at colonization — Geological speculations.

FROM Guerrara our faces were set steadily southward, and we were well equipped for a forced march of three days. The plain, for some time after we mounted from the Wed Seder, was covered with rolling sand-drifts of fine and almost impalpable powder, driven and ripple-marked by the wind, in which our horses sank at each step to their knees. The only plant I could discover was a garlic, new to me, with a leaf about two feet long, and scarcely the tenth of an inch in width, and a root with a flavour stronger than ever was breathed from the mouth of a Tuscan peasant.

Soon we rose upon a stony plateau, of different geological character from the country of the M'zab, composed of secondary limestone, but covered with rough masses of conglomerate, and innumerable sharp pebbles of silex, of every hue, apparently disintegrated from their matrix, which the winds that sweep this elevated tract had carried entirely away, and deposited in the lower ground through which we had just so painfully waded. Only here and there was the surface dotted by dwarfed and colourless desert shrubs, about six inches high. Not sorry were we just after nightfall to reach our appointed bivouac—the bed of the Wed N'ça, marked in the gloom by our gradual descent among clumps of a dwarf tamarisk new to me (*Tam. Buonapartii*, Cosson), and other shrubs, which afforded us abundant fuel. We were compelled to exercise much caution in the selection of a camping-ground, for we were now in the country of lawless and predatory tribes; and while the camp should be so pitched in a hollow that the watch-fires should be concealed, it was necessary to avoid the contiguity of trees or bushes, which might harbour prowling marauders in the moonlight. We were fortunate enough to find a piece of level ground, sheltered by a ridge two or three feet high to windward.

Few persons who have not made the experiment of camping can conceive how important it is to have a little low shelter close to the tent. While a high wall, twenty feet off, affords but little protection, and a hill still less, the bitterest blasts may be warded off by a turf raised near the tent, or by a very low bank a foot high, under the lee of which you may wrap yourself in your cloak. While the tent was being pitched I had just time to gather a few plants, subsequent examination of which, showing

them to be new species, proved how much might have been done, could we have delayed for a day or two on such a field. But we were in a dangerous country, and had been repeatedly warned of the necessity for rapid locomotion, and for keeping a good watch all night.

As I was sitting in my turn over the embers, one of the sehaurs, my companion, recounted how in this valley last year, with a caravan of camels and eight drivers, they determined to keep a watch, two and two by turns. They kept it up till past midnight, when a band of marauders, who unseen had been hovering in their neighbourhood, came upon them. Of course the whole party, sentinels included, were buried in slumber. Bang, bang, bang, sounded their réveille; they started to their feet, returned the fire, and the robbers fled; but not before two victims had been stretched dead by the first discharge, and a third, mortally wounded, expired by the embers an hour afterwards.

We of course took every precaution; firearms were all examined and laid ready, and our own revolvers by our pillows. The baggage was all piled in front of the tent, with the servants' tent on the other side the watch-fire. The mekhasni, who were well aware of the danger, were adjured, under penalty of fame, character, and fortune, if sleep they must, to sleep with both eyes open, and a patrol was arranged on the brow beyond us. P. had retired early, while I had remained to watch the watchers. At midnight, the moon just beginning to rise and dispel the blackness of night, I followed him within our tent. About an hour afterwards P. turned out for duty. Our trusty retinue, camels, and baggage, all lay calm and silent beneath the bright moon. The prostrate

sehaurs snored on the ground, the domestics and armed retainers took up the refrain from within their curtain, and the sentry, squatted on the baggage, nodded with his piece prostrate before him. So much for Arab vigilance when danger is abroad.

The sun had set with a strange lurid glare, followed by a vivid green hue along the western horizon. We never had seen such colouring before, and accordingly when we rose at half-past 4 A.M., thankful for the watchful Providence which had guarded us, the moon was hidden, the sky overcast, and soon a torrent of rain—a portent indeed in the desert—betokened a pleasant time for our ride of fourteen hours before we could reach the bed of the Wed M'zab, our next night's halting-place. But as soon as the sun rose the day promised better. In fact, water would be wasted on so sterile a desert; so the clouds, enlightened by Phœbus, discovered their mistake, packed up and removed to a happier clime. We had already sent on the camels, and stood shivering in cloaks by the hot ashes, silent and puffing till the red gray dawn bid us be in the stirrup.

For a couple of hours we crossed and recrossed the Wed N'ça, provoked at having to leave many a plant and bird probably as yet unknown to the naturalist; but the necessity for pressing on was imperative. From hence we mounted into the plateau of El Guentra, recalling the description of the Steppes of Tartary, covered with half-macadamized sharp stones, and here and there a minute white or brown leafless shrub struggling for existence. No bird, no other sign of life, relieved the weary monotony, while a strong and bitter wind saturated the air with impalpable sand, till every pore of the body was gritty and irritated, and the sharp

quartz fragments felt as though they had penetrated even beneath the skin. The eyes were in torture; sand in everything. We found a very slight depression where we halted for our midday feed. We chewed rice and sand, bread and sand, and drank foul water and sand. My knife grated as I opened it; my pencil scraped as I attempted to use it; the touch-holes of our guns were choked; our tobacco was heavy with it; it predominated over coffee-grounds in our cups, and our beards and moustaches were matted with it.

We here found again the limestone conglomerate with earlier pebbles, a fine white flint, which I had not before observed, predominating. After an hour and a half, during which our camels had overtaken us and passed on, we started again due south. We needed not the compass, for the line was marked by piles of small stones here and there, to each of which every conscientious traveller should add his subscription. They were at irregular intervals, but in such a plain the slightest mark could be seen afar. At length even these ceased, the last pile being not a cairn, but a circle of small heaps, collected like a party of discontented brethren, who had declined to be dropped further at promiscuous distances, and had sat down together to enjoy the only society the surrounding desolation afforded. We only found two living things through the whole day—a curious white scorpion, and a desert-lark (*Annomanes regulus*, Bp.), which must have lost its way.

About 4 P.M. we overtook and passed the camels—the great event of the day. Just afterwards I noticed a little boy trotting on by my side. We had seen him leave Guerrara with us, and supposed he belonged to an Arab who, with a camel and two asses, had joined our strong convoy for protection. We now learnt that the little fellow

was from Waregla, that his father had hired him out to be goatherd with a man at Guerrara, but, after a few months' service, the poor lad, home-sick and ill-treated, had run off, and, having heard we were bound for the south, had joined us without food or water, and accompanied us on foot till the afternoon of the second day. We relieved the brave little urchin, who gallantly kept up with the caravan till night, and slept soundly under our guardianship.

In talking with our sehaurs we, for the first time, discovered that these poor camel-drivers, though assigned to us by government, or the authorities of their respective cities, were not paid one sou, but had to provide themselves with everything except water, being under what the French term the "corvée," by which each nomad Arab and camel is liable to be called out in turn for government use, it may be only for a day, or, as in this case, for three months; and all the time they are gaining nothing beyond our uncertain gratuity at the end. We began to take pity on these poor pariahs, who had toiled so hard for us in every way, and had been most grateful for our doles of food and a pair of shoes apiece.

After a ride of eleven hours we had traversed El Guentra, and defiled among a range of low sand-hills, or rather a series of little basins surrounded by mamelons. As it was 6 o'clock our mekhasni wished us to halt, lest it should be dark before the camels got up with us. The cavaliers had evidently lost their reckoning, as they had assured us the night before that eight hours would bring us to the Wed M'zab. P. and I, seeing the nature of the plain, and the danger of making a fourth day, were determined to press on, and they reluctantly acceded. For near three hours we urged on

our wearied horses, till dark objects began to relieve the undulating plain, and at length these stunted bushes and the soft sand into which we had descended apprized us that we were in the valley of the Wed M'zab of evil renown.

On a sudden there was a pause. Our chief cavalier pointed out to us a glimmering light. He quickly passed the word for all to load with ball, and have pistols ready. He was now in his element, and showed himself to advantage as a skilful tactitian in the field. He changed our course, so that, instead of passing the light, which was in the centre of the Wed, in line, we were to take a détour and come down upon it in file. We were to walk our horses quietly till within a few yards of the fire, and then, with as much clatter as we could, trot past. If a gun were raised against us, or a shot heard, he bid us all fire as steadily as we could, canter past, rein up, turn, discharge our second barrels as we passed, and then trust to pistols and personal prowess for the rest, the expectation being that a second volley would put any robber band to flight, Arabs not being usually familiar with double barrels.

The tactics of battle thus arranged, we rode on in silence, two cavaliers in front, then myself, Omar, and the other mounted attendants, P. being intrusted with keeping the rear up to time, and this being also the best position for his too conspicuous white horse. As we were marshalled, each piece cocked and resting against the thigh, the steeds seemed to enter into the spirit of the affair. I certainly felt uneasy at first, but, after an ejaculatory prayer that we might have nothing to do with the shedding of blood, every feeling but that of quiet interest passed away, and I felt as if it were a most ordinary matter. Such is I believe the usual

result of *necessity* upon the nerves. Our second mekhasni crept forward to reconnoitre, and returning said the party were armed, had horses but no camels in sight, and were fourteen in number. We then trotted towards them. As we came up our leader exclaimed "We are M'zab," and demanded whether they were friend or foe. He waved his burnous as the party started to their feet and received us with a yell. They were friends, Wareglans, a peaceful caravan.

In less time than it takes to write it we had dismounted, laid down our guns against a bush, and were squatting cross-legged shivering round the embers in a wide circle, and eating from a large shallow basket the dates produced to welcome and to pledge us. It seemed they too had been on the alert, and had a scout who had announced the approach of horses' feet. They had just seized their arms before we rode up, and were as well prepared as ourselves. Between the legs of each still protruded the butt of his firelock, placed behind him on the mekhasni's peaceful challenge. We now noticed at some distance beyond in a line a second fire, placed where the sand-hills rise from the wed almost as steep as a cliff, round which the camels were left while the armed party bivouacked in advance.

In pleasant chat with our guards they whiled away the night, telling stories, not always to the advantage of the French so far as we could gather; until, about 9 o'clock, our own camels came up, and Omar rushed to look for a spot to pitch our tent. Our new acquaintances explained how nearly they had fired on us, and that, had not Yaya ben Yamina, our cavalier, been recognised on his first challenge, nothing could have averted a mutual massacre by mistake. The wind whistled loud and broke in gusts of sand and storm,

auguring ill for our night's rest. Fuel was scarce, so we dined heartily off cheese, biscuit, and dates at the fashionable hour of 11 P.M. The soft sand afforded no hold for our pickets, and we could scarcely prop our tents, while the scanty brushwood forbad the hope of keeping up a fire. However, forming a screen by our row of kneeling camels, inside whom were picketed our horses, and then the luggage piled, we contrived to sleep, not however without the usual interlude of horses breaking loose, and of occasionally being buried alive in the penetrating sand, in which I more than once discovered myself embedded to the cheek. A steady patrol was kept up all night, and an early start secured.

By 5 o'clock the camels were off, and, after vainly attempting to raise a fire for our coffee, we followed them in an hour. Pursuing still a due south course, we rose into another plateau, with a singular range, the Dj. Soultaun, to our left, having exactly the appearance of a series of Titanic forts, the flat tops of the hills having probably once been a line of waterwashed reefs, indented and worn by the tide. For the first time there occurred a general line of depression in the country running from N.E. to S.W. Hitherto the trend of the ground had steadily risen towards the south, till we were several thousand feet above the sea-level. But now we found ourselves looking down from the edge of a vast terrace upon the boundless outline of plain several hundred feet below us. On a hard level sand we cantered on for an hour or two till we were close upon the brink. "There," exclaims a cavalier as he waves his burnous, "there is the true desert, without another break till it reaches the Mountains of the Moon and Timbuctoo. There it is in the distance, Waregla, the last oasis of North Africa."

DJEBEL SOULTAUN, NEAR WAREGLA.

To face page 218

The edge below us presents under the rising sun the illusion of a sandy beach, then of a vast sea, even to the rippling of the waves. To the south a spur along which we ride takes the form of a headland, giving the whole outline below the appearance of a wide bay, like that of Algiers. After four hours' hard riding we halt for breakfast, being able with our glasses clearly to make out our convoy in the distance still ahead of us.

Our horses had hardly munched their barley when our guide began to grumble at our halting so long, and proceeded to disclose to us the very agreeable piece of intelligence, which he might have given us before, that the caravan we met last night had informed him that the brother of Sidi Hamsa had raised the standard of revolt, and was daily expected to attack Waregla, then under the rule of Sidi Zobeir, another brother, who had concluded a treaty last year at Algiers. In anticipation of the attack all the camels both at N'goussa and Waregla had been ordered to be driven in under the walls, as it was not known when these hordes might arrive to plunder. It was this report which had started off our sehaurs so early, and had caused them to continue to push on so indefatigably in order to reach Waregla before night. We had no choice but to press forwards and take care that our caravan did not camp another night beyond Sidi Zobeir's protection, since we had no provision of water for a retreat. After all, the Arabs are sad story-tellers; it may be only a desert "canard."

We ride on at a rapid pace—and splendid galloping ground it is; but first I break a stirrup-leather, and then Omar, with his usual felicity managing to get embarrassed with his pack-saddle, dismounts and maltreats the old horse to such a degree that he knowingly whisks

his long tail in the face of the irascible dragoman, and, making off at an easy trot, leaves him to follow on foot at discretion, and defies all his attempts at capture. A nearer view of the flat-topped hills with the fort-like shape plainly revealed the traces of a former table-land, gradually washed down through the drainage and action of water into the desert below.

We gained a view of the oasis of N'goussa to the N.E. as we rode along, with its palm-groves resembling a forest of masts in the sandy haze. We had planned to reserve our visit to it till our faces should be turned northward again, and gradually descended into the lower desert through an avenue of round-topped hills, which finally dwindled from hills to beehive-shaped mounds, dotted with tamarisk-bushes and some other small brushwood here and there.

These mounds are called "El Behkerat"—the young camels. The name is explained by the legend, that one day a sehaur, arriving from the desert with his camels, halted at a well under Dj. Krima to water them. But the well was preoccupied by a man drawing water for his palms. "Make haste, thou vile son of a black raven!" exclaimed the thirsty wayfarer. Unwittingly he had insulted a holy marabout. The saint, revengeful as those who would have invoked fire as Elias did, raised his eyes to heaven, stretched forth his hands, the camels lay down transformed into sand-hills, and the well was dried up for ever.

On one of the heights, the Djebel Krima, were the ruins of a fortified but now crumbling city, which had apparently commanded the access to the oasis from the north, but was now wasted without inhabitant. Below was a straggling forest of palms with thick underwood of dwarf tamarisk and other salt-loving shrubs. Among

these we caught a glimpse of our camels' heads just before us, our trusty second mekhasni, a native of Waregla, leading the van. A sand-mist rose on the plain in front, and underneath the surface glistened as if some broad stream were sleeping in the sunbeams. So complete was the illusion that P. declared it was a marsh, and muffled his face in a handkerchief to avoid the miasma. Beyond this from left to right stretched a dense date-forest, amidst which three tall minarets in the distance marked the position of the city of Waregla. To the north we could descry two caravans of camels creeping in long file towards the trees.

And now we had gained the last oasis in the Great Sahara. Nothing but the ocean of the mighty Libyan desert was beyond until Touat was reached to the westward. We sent forward our first horseman with our commendatory letter to Sidi Zobeir, the Kaliph of Waregla, and a fast friend of the French government.

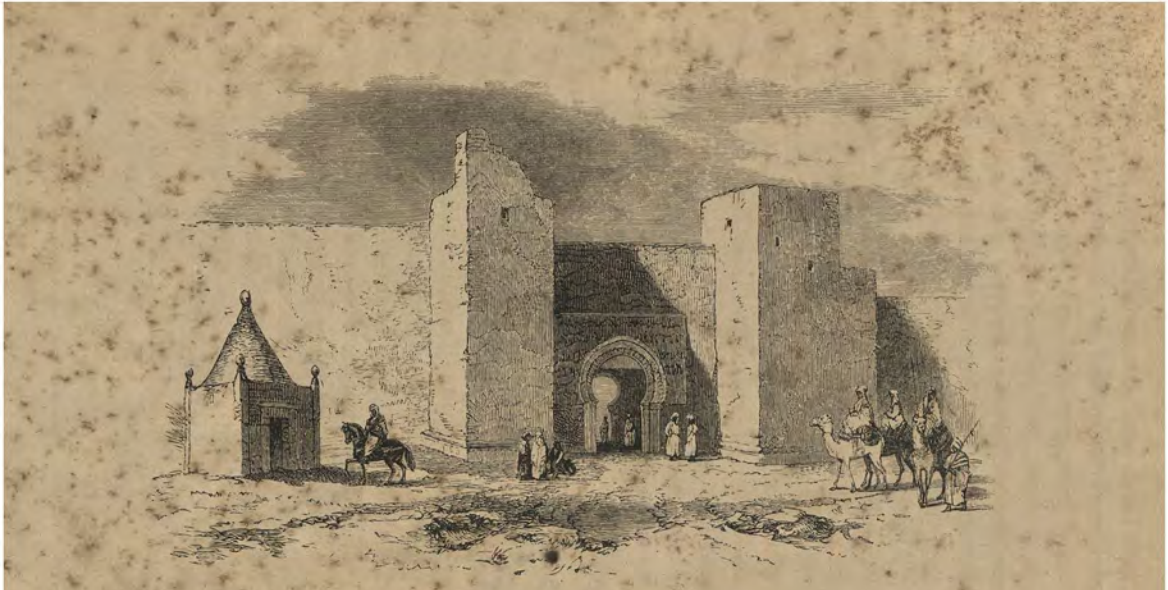
The sleeping lake resolved itself into salt incrustations on the sand. Every plant as we descended was new and strange, but once in the plain itself there was not a vestige of vegetation. It was simply the broad bed of the Wed el Mia (river of the hundred streams), which had gone to follow their African confrères, whether above or below ground deponent sayeth not. The mists and exhalations proved dry indeed. Riding across the fine penetrating sand, we gradually mounted to the oasis, by far the largest we had seen.

Having heard that Sidi Zobeir was camped on the outside of the city, we halted in the palm-groves. Low black tents peeped everywhere from the blue bushes or contrasted with the white sand-hillocks. At length, after a council of war, weary of waiting, we rode on

with Omar and our mekhasni to the gate of the city, defiling between the low mud-walls which bounded the little palm-gardens, and which often formed raised causeways; and at the Bab el Soultaun (king's gate) we awaited our envoys. Several of the natives greeted us as they passed, and here for the only time in all our travels we were saluted by the friendly "Salem aleikoum," "Peace be with you," almost invariably reserved for followers of the Prophet alone. The people were a different race from any we had yet seen,—very dark, often with a strong dash of negro features; the women with frizzled hair curled into corkscrews and plaited at the back, and ornamented like Nubians with red beads and gold coins.

At length a horseman rode up and bid us follow him to the camp of the Agha. He was a relation of the kaliph, who had been sent on the errand. We retraced our steps and entered the Arab encampment, where we saw several sheiks' tents larger than the others, and adorned with tall plumes of black ostrich-feathers. About 500 yards from the Agha's tent another horseman came to meet us. He had a voluminous white-striped burnous, and handsomely furnished saddle and housings. This was the Agha's brother. At last we were led to Sidi Zobeir himself, a fine-looking Arab, more than six feet high, about thirty years of age, with dark complexion, oval face, prominent hooked nose, dilated but delicately formed nostrils, long taper fingers, dark pointed beard, and pensive expression, simply habited in a white burnous. In all he was a fine type of the high-bred Ishmaelite chieftain; and his brother had the same impress of high extraction.

He received us with quiet courtesy, and led us into a low, flat-roofed, and scarcely finished building.



BAB-EL-SOULTAUN, THE SULTAN'S GATE, WAREGLA.

To face page 222.

Two windowless rooms, opening at right angles to each other into a little courtyard, formed our dwelling. We selected the one whose doorway was in the centre, and presently the Agha sent us a long-pile Turkey carpet to furnish it. Our spare tent formed a curtain door. The camels, which had followed us, were quickly unloaded, their burdens stored in the other room, and we took formal possession. The Agha with some of his attendants sat outside on a mat. He smoked his pipe while we were served with coffee on a silver tray.

It was interesting to note the patriarchal familiarity with which he was addressed, and at the same time the deferential character of the salute. Each passer-by stooped before him and touched his hand, kissing the hand with which he touched his chief, or simply kissing the hem of his burnous if he were one of very inferior rank.

We re-entered and were served inside our abode with dates and sour camel's milk in a bowl as large as a wash-tub. About sunset two Arabs entered with a long greasy pole on which was spitted the carcase of a sheep roasted in its skin or rather baked in ashes. This was held between us, while an attendant sliced it with his knife and tore off the morsels with his nails. Any particularly savoury bits he put with his own fingers to our mouths. Whatever may be said of the manner of dishing up for the table, no Welsh mutton that ever was roasted can compare with a desert sheep baked in its own skin. The gravy ran in streams, and the flesh was as tender as though it had hung a fortnight. All the wool had been singed off in the process of cooking and the skin formed at once a protection for the juices of the meat and a good "crackling." After the sheep, followed savoury sticks of kabobs of liver

and kidney, but without any bread or vegetables. But this was only the first course. Kouskousou followed in due order after an interval of an hour, relieved by a state visit from the kadi of the town, who apologised intensely for not having arrived sooner, and sat an interminable time. It was long since we had been so feasted, the only fault in the dishes being that they were so engrained with sand as to require a gizzard for their digestion.

Coffee was sent us from the Agha's tent, and soon afterwards he, his brother, and the kadi paid us another visit, were delighted with our fire-arms, and persuaded us to make ball practice with our revolvers by candle-light. There was a fire lighted in the centre of the court-yard, which was thronged with Arabs of every degree laughing and chattering incessantly. Our horses varied the lullaby by an occasional uproar, for the six unruly brutes were all picketed within the enclosure, too close together for peace's sake.

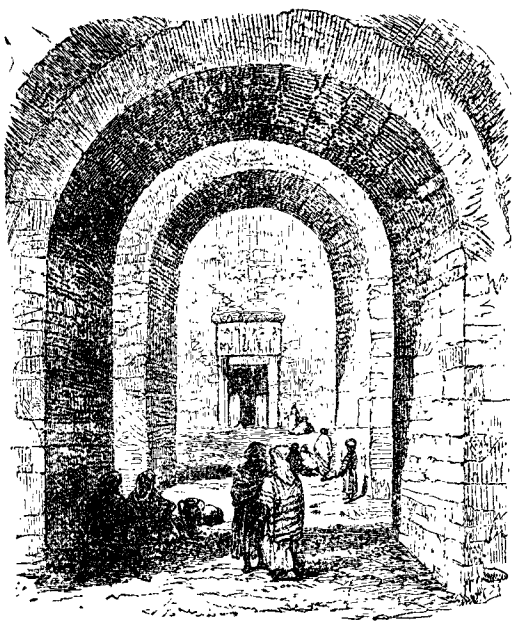
The next morning no sooner was our curtain lifted than we had a bevy of visitors. The Agha, his brother, and the kadi presented themselves, attended by coffee and pipe bearers, whilst a crowd of inferiors choked the doorway. They seemed all curiosity to watch the toilet of the Christian dogs; but our modesty had by this time become indurated, and we submitted with good grace to what we could not help. The courtyard being so open, we were always like beasts in a show, subject to the gaze of the natives, especially at meal-times. Doubtless, had our entertainers been as shrewd as John Chinaman, a pretty fortune might have been amassed by a charge per head for the sight. But we were never molested nor treated with the least incivility.

It was proposed that we should go on horseback after

breakfast to visit the city, where no European had yet been seen. The Agha begs us not to go alone, but insists we shall be well attended. They still sit, and sit on. Conversation through our dragoman flags, yet still they sit. We exhibit fire-arms, tools, knives, and at last the photographs of friends at home. These create great interest, though our visitors are evidently puzzled at our want of propriety in showing the portraits of ladies. "She wants but life to bring her here," exclaims the Agha at one of them. It is nearly noon, when a bowl of kouskousou arrives. The kadi craves permission to see us eat. After breakfast the horses are mounted. We are escorted by the Agha's brother, the kadi, a band of their mounted retainers, and our whole armed retinue.

Our camp was about two miles to the south of the city, which had a triple circuit of crumbling walls; the outer enclosing a wide open space, where cattle could be driven in, caravans arranged, and camels loaded and unloaded. This we entered by a narrow gateway. The middle walls were built of sun-dried bricks much dilapidated. The inmost had a large fosse all round, edged with tamarisks, and now containing a scant supply of salt-water. The whole was completely enveloped in the forest of palms. The city was accessible by five gates, one of which was now closed, a small flat bridge being thown over the fosse for each. On each gateway, and over all the doors of the houses, were Arabic inscriptions, and portions of bright-coloured pottery let into the wall, like coarse Dutch tiles. We rode by a causeway all round the ditch, and entered the city by the last gate. The arch here was Saracenic, and the style of building very distinct from any we had yet seen. There were three

large mosques, with lofty square towers slightly tapering, and surmounted by a cupola for the muezzin. The streets were frequently merely low-arched passages,



Main street, and entrance to Mosque, Waregla.

with mastabas, or stone platforms, lining each side, and we had to stoop to our horses' necks as we rode through these archways.

As we passed on, these narrow alleys were crowded with Wareglans anxious to salute the great man's brother, and to gaze on the travellers, whose half European dress and English saddles were strange novelties. The Sidi had to return salutes, decide quarrels, and cicerone his visitors at the same time. At one gate he halted to settle a piece of litiga-

tion touching a burnous. While waiting here I noticed a little brown child in a gaily striped haïk. He was lifted up for minuter inspection, and I put a piece of silver into his little hand. Immediately a sooty girl of ten years old was handed up, yelling with terror, but grinned a ghastly grin at the sight of a ten-sous piece in her fingers. Backsheesh had overcome the dread of the evil eye.

We observed that, in lieu of the long cord of camel's hair worn round the fez by the Arabs, the Wareglans wore a simple twist of fine grass matting.

With all the show of deference exhibited, the Sidi evidently did not like to take us through the souk or market-place, yet at our request he acceded. While there, a stormy debate ensued with some person he had fined for shirking his taxes. The crowd yelled and became turbulent, and, pressing upon us, the retinue had to beat them off with sticks, and we retired with as little delay as possible. We then rambled over a quarter of ruins. This was the Kasbah, or palace of the Sultan, who was deposed some eight years ago, since which time the ancient dignity and high-sounding title has never been resumed.

The existence of so lofty a rank as that of Sultan is explained by the descent of the deposed family. The Wareglans claim to be the most ancient city in the whole Sahara, and to have settled their oasis many years before the epoch of the Hegira. Originally governed by an aristocracy, they had fallen into such a state of anarchy that they determined to end their feuds by a monarchy, and, unable to agree among themselves on their future prince, sent an embassy to the Emperor of Morocco to request him to give them as king some scheriff or descendant of the

Prophet. The Emperor for some time refused, but, as they continued urgent, consented to supply them with one of his sons if they would pay for him his weight in gold-dust. Eager, like some more modern instances, to rush from anarchy into the arms of despotism, they agreed, and he produced a son of enormous size, doubtless fattened for the occasion, whom they conducted home in triumph. The kasbah was built for him, and it was stipulated he should levy no taxes for his privy purse, but in lieu thereof have as many gardens assigned for the royal domain as there were days in the year. In after times the princes contrived by their extravagance to squander the regal domain, till it was arranged that, instead of lands, the Sultan should receive a camel-load of dates yearly for every 100 trees. As there are 60,000 female palms in the oasis, this formed no inconsiderable revenue.

The dignity was not strictly hereditary, but confined to the royal family, called Cherfa; and the notables exercised the strange prerogative of deposing the Sultan at will. This privilege was frequently exercised, and was signified in a tacit manner to the ruler. It was the custom at the hour of morning prayer for a band of musicians to perform in front of his chamber. If they omitted to do so, it was the understood signal for him to retire into private life and make way for his successor.

During the disorders which succeeded the deposition of the last Sultan, Sidi Hamza—by far the most powerful chieftain of the southern Sahara, and whose authority reached into Morocco—extended his rule to Waregla, and by securing the inhabitants against the attacks of the Touareg was willingly recognised. He had, the year before our visit, made the

city acknowledge the suzerainty of the French, his allies; but as no French troops had visited the place, nor any European been admitted within the walls, the submission was only nominal. Since that time, however, a flying column has shown itself there, though the general in command prudently, for fear of collision, forbad any of the troops from entering the gates.

Waregla boasts that it never submitted to Dey or Porte. On one occasion, however, Salah Raïs, an adventurous Dey of Algiers, in 1552, actually pushed his forces by way of Tuggurt and the Wed R'hir as far as its gates. Some cannon-balls are yet preserved which were fired against the walls; and the inhabitants were compelled to buy off the invaders by a heavy ransom. The visit, however, was never repeated; and Salah retreated more rapidly than he advanced. The independence of the place has been in far greater danger from the attacks of the predatory tribes who hang on its outskirts, Chaamba and Touareg, who lose no opportunity of interfering in the internal affairs of the city; and have more than once attacked the place, laid waste the gardens, and only been bought off by the payment of a heavy contribution. Usually, however, these tribes are too jealous of each other to unite for any warlike expedition, and the Wareglans take good care to foster their mutual suspicions.

We were much interested by a visit to the Jews' quarter, who here, as among the M'zab, monopolise the working of metals. They have their own streets, and a separate municipal organization; and, among a population so lax in its Mohammedanism as the Wareglans, enjoy perfect freedom and independence, so long as they pay their taxes, and do not intermeddle in politics. I found among them some coins of Castile, before the

union with Arragon—angular masses of silver, weighing an ounce, and rudely stamped with the arms of Leon and Castile. They also produced some coins of the Christian kingdom of Jerusalem, and some shekels of the date of the Maccabees; but the prices they demanded were so exorbitant, and my suspicion of their genuineness such, that I failed in securing them.

These Jews afford an interesting illustration of the effect of climate, which, in the course of generations, seems to have produced the dark colouring pigment. They are almost as black as negroes—much darker than their brethren of the M'zab and Wed R'hir. Yet there was not the slightest trace of the negro features; all the lineaments of the countenance were as distinctively Jewish as in any clothes-dealer of Houndsditch. They were as dark as the black Jews of Abyssinia, whom I have seen in Jerusalem, but the hair, without being woolly, was grizzled and matted.

The palm-gardens of Waregla, which extend for several miles in all directions, are very different from those of the M'zab. They are full of deep trenches, crossing each other, and supplying moisture to the trees by the irrigation of salt-water, which the palm seems naturally to prefer to fresh, if we may judge by the luxuriance of its foliage and the quality of the dates, considered the richest in the whole Djereed. The wells again are unlike those of other oases. Though there is not a single superficial spring, yet the level of the fresh water is very near the surface; and the wells are shallow and frequent, varying in depth from eight to twenty feet. The machinery for raising the water is simply a long pole balanced on a post, with heavy stones attached at one end as a counterpoise to the leathern

bucket. This pole, worked on a pivot, is easily swung round, and raises the water with little exertion on the part of the gardener.

Beyond the gardens the marsh below swarmed with wild duck, and abounded in rank herbage, on which these migrants were feeding. There were many interesting shells to be found there, and I obtained new species of the genera "Melania" and "Melanopsis." But naturalizing was a task of some little difficulty, the place being in so unsettled a condition, that the Agha begged us to be cautious, and on no account to venture abroad unarmed or unattended by several of his retainers. Especially he bid us beware of wandering among the trees alone, or of discharging both barrels of our fowling-pieces. However annoying it might be to be thus hampered where the ornithology and botany were evidently so rich, there was no help for it, as we could descry from the hills small bands of predatory Touareg or Chaamba hovering on the distant plains.

The Wareglans, by their physiognomy, appear very distinct from either Arab or negro, though, in the lower classes at least, there must be a considerable admixture of negro blood. The broad nose and dark complexion would recall the description of the Gætuli of ancient writers, with a dash of the Melano-Gætuli (or Touareg?). Their language, which differs as a dialect from those of the M'zab and Wed R'hir, is yet, in a great degree, mutually intelligible to those people, and is certainly closely allied to the Berber. Probably it is a patois of Berber with an admixture of Touareg and negro words. They are an indolent race, contrasting strongly in this respect with the M'zab; and, as far as could be conjectured from the wide expanse of the Wed el Mia, their oasis is capable of indefinite extension. There are

many wells on the outskirts of the gardens to the south, utterly neglected and gradually choked, probably from their lying on the side most open to predatory attacks.

Yet the Wareglans have made some attempts at colonization. About three years ago they formed an expedition to discover new settlements to the south in the traditionary halting-places of the M'zab; and at three days' journey, after traversing a region of shifting sand, or "Aregs," as they call it, came upon a depression, where they sank wells and reached brackish water at a depth of eighteen feet. But they found no vegetation, and contented themselves with planking over their wells, which of course the next year were choked with sand; and no subsequent attempt was made to establish the colony.

Unlike most of the weds in this part of the Sahara, the Wed el Mia, as well as the Wed Djidi further north, runs not from south to north, but from south-west to north-east. This peculiar and exceptional drainage may probably account for the abundance of water at a higher level than elsewhere. No doubt the general drainage of the desert is all towards the north, as exemplified in the great channel of the Wed R'hir; but here the water is intercepted throughout a course of near 200 miles by this diagonal channel, which conducts it to the basin of the Wareglan oasis, where a range of rocks interrupts its eastward progress; and, repelled by these limestone rocks, it is forced almost to the surface, and actually, in the lake below the city, oozes through the saline deposit and forms the salt marsh, which is never entirely dry in the hottest seasons.

I should conjecture that the wells sunk by the Wareglans, to the southward, had struck the stratum

on which flows the water which, continuing its northern course, becomes at Temaçin, a distance of 300 miles, the Wed R'hir. This may possibly be traceable to the Djebel Hoggar, a pile of mountains with vegetation in the central Sahara, never yet visited by Arabs or Europeans, but the stronghold of the Touareg. If this be the case, a more accurate knowledge of the course of these underground streams might yet lead to an indefinite expansion of the oases of North Africa.

CHAPTER XIV.

The Touareg — Embassy to Algiers — Dr. Barth — Touareg passport — Djebel Hoggar — Hidden wells — Mahari, or white dromedaries — Costume of the Touareg — Arms — Language — Troubles at Waregla — Marocain mountebanks — A tea-party with an Agha — Report of a battle — Our host's brother slain — Hasty retreat — Preparation of a chieftain's letter — Ride to N'goussa — Singular tombs — Arab honesty — A N'goussa feast — Alarms of robbers — A watchful guard.

ONE of the most interesting results of our visit to Waregla was the information obtained respecting the Touareg, of whom there were many, not only hovering in the neighbourhood in their genuine character of freebooters, but also as peaceful traders, or in the guise of hired guards for caravans camped in the outskirts, or bivouacking with their beautiful white dromedaries within the walls. To penetrate further than a ride of thirty miles within their territory we found to be impossible, and in that expedition we saw nothing of them. At Waregla alone had we opportunity of acquiring direct and satisfactory knowledge of them and their habits.

I had been fortunate enough during the previous year to meet with the so-called Touareg embassy, who arrived in Algiers to arrange a nominal treaty, and who, received in that city with a consideration beyond their real position, attracted immense curiosity among a population where not one of these renowned and dreaded riders of the desert had ever before been seen. They arrived on their "mahari" or white dromedaries, which, in a few days, were sent back to Laghouat long before the

return of their masters, as they were found incapable of enduring, even in spring, the climate of the Tell.

The embassy manifested an interest more than Arab in the wonders of French civilization sedulously displayed to them during their sojourn. Having, through the courtesy of the Governor, been introduced to his swarthy guests, I held through an interpreter several conversations with them. They were gallant and polite, and, on being presented to the first English lady they had ever seen, the chief exclaimed, "Ah, I have seen your countryman (meaning Dr. Barth) in our land. He came to us and trusted to us. We were very good to him, and he went on his way." Having learnt my intention of visiting his country, he gave my wife a special invitation to accompany me, assuring her of safe-conduct even as far as Timbuctoo!

He then added, "I can talk English;" exclaiming in English as he held up his hand and counted on his fingers, "one, two, three, four, five, six, seven, eight, nine, *eighty!*" Mrs. T. took care in reply to assure him that the English thanked him for being good to their countryman. He again pressed upon us his pledge of safe-conduct through the Touareg country, and, asking for my pocket-book, wrote in it in Arabic characters his name and titles, my own name, and a recommendation to the protection of his countrymen. Though I still treasure his note as a precious and unique passport, I could not feel that it would prove an infallible protection, as these freebooters are sometimes in the habit of using lance or sword before they have had time to examine whether the traveller's papers are "en règle."

We never found any Wareglan who had traversed their country, though many M'zab and Arabs of my acquaintance have done so; but since we are now on the

confines of their territory, and actually made a short incursion into it, this may be the best place to give a résumé of the information obtained respecting them.

They claim the whole desert from the oasis of Wadan, ten days' journey north-east of the Senegal River, to Timbuctoo, and along the north of the Soudan to the Tibboo country, east of Lake Tschad, Mourzouk, and the line thence by R'dames, Souf, and Waregla.

The head-quarters of their chief clan seem to be an insulated group of mountains, somewhere south-east of Touat, and said to be fifteen long days' journey from Waregla. This range is stated to be well wooded with a species of terebinth, and also with pine in its upper portions. To judge from the woodwork of saddles and the handles of weapons which I obtained from Touareg, manufactured in the Dj. Hoggar, there is also a species of hard resinous wood, probably allied to the junipers. But the sacred enclosure of the Dj. Hoggar has never been penetrated by the stranger. The caravans from Touat carefully avoid the head-quarters of these plunderers; and there, during their marauding expeditions, their wives and flocks are deposited in security. Its elevation must be considerable, if coniferous trees are found in abundance, and the Touareg state that the rains are plentiful every winter, and the cold severe.

Besides the Dj. Hoggar, far to the east exists the range to the Dj. R'hat, south-west of Mourzouk, the head-quarters of the chief sept of Touareg, the *Asguer*, who extend to Soudan. The other great clan, whose home is the Dj. Hoggar, is called the *Fourkhaz*, and extends nearly to the Atlantic. This tribe, however, acknowledges the supremacy of the Asguer, who give the sheik to both divisions. The name of the present monarch is Hadj Mohammed R'henourkhan, the same

who visited Waregla in 1856, and sent on several members of his suite as the embassy to Algiers, without however the smallest idea of *submission* in so doing.

The Touareg do not appear to have any subdivided sheikdoms like the Arabs, but, as far as they are governed at all, submit directly to the king. With the exception of their mountains they seem to have no settled oasis, but boast of a marvellous instinct for the discovery of water, and assured me several times that the desert is not so destitute as might be thought, for that they need rarely go more than two days' journey without finding water, for which they dig in certain districts as they require it.

These extemporized wells vary from three to nine yards in depth, and the presence of water is detected even under the loosest sand, by boring down with their long lances, when a little moisture, after the lance has been slightly lifted and left in the hole for two or three hours, will indicate the prospect of success. Doubtless the Touareg are good surveyors, and are thoroughly acquainted with the dip and position of all the underground streams and limestone basins of the desert. To reveal the existence of one of their wells, or well-districts, to any foreigner, is an offence inexorably visited by death, for this knowledge is the true secret of their complete independence.

Some of the Touareg, near Waregla, were camped in the small leathern tents which are peculiar to them. They seem to be made of the untanned hides of goats or antelopes stretched, and then stitched together, and, though heavier, are cooler than the camel's-hair abode of the Arabs.

But the most peculiar appendage of the Touareg is his magnificent "mahari," or white dromedary, as indis-

solubly associated with these people as the horse is with the sons of Ishmael. This graceful creature, which may generally be seen kneeling in the souk of any M'zab city, with its fawn-coloured head and neck towering above the camels round, bears the same relation to them that the thoroughbred racer does to the cart-horse. Its small head, its very fine coat, its great length of limb and depth of chest, all bespeak the highest "breeding." I never saw any ordinary camel (or djimel) which approached within 18 inches the stature of a mahari; but the most distinctive development is in the depth and width of chest, while the hump is comparatively small.

The Saharans maintain the mahari to be a distinct species, but it is not necessary to be an acceptor of Mr. Darwin's theory in order to believe that this noble creature is simply the development of the camel by a long course of artificial selection in a very dry hot climate, where speed, and not the power of bearing burdens, was the one object aimed at. The Touareg is as careful in the selection of his breeding mahari as the Arab is in that of his horse. All intermixture with the common camel is carefully avoided; and as the pedigrees are handed down, many a dromedary can boast a genealogy far longer than the descendants of the Darley Arabian.

The training of these white dromedaries, as the French term them, is among the "noble mysteries" of the desert; and certainly the mahari, so far as my own observation goes, is rendered obedient to the word of command, and lies down, turns, rises, quickens or slackens its pace, as no other camel is taught, at the voice of its rider. It is also guided by a bridle—a single thong of leather attached to a ring inserted in its

nostril when very young, and by which its rider directs it—dexterously flinging the rein over its head, and drawing it to either side at pleasure, a mode of guidance never adopted with the ordinary camel.

But the most singular part of the dromedary's equipment is the saddle, placed not on the hump or back, but on the neck and shoulders. It is prevented from slipping from its position by two girths; one just behind the fore legs, the other round the neck. The saddle itself is in shape like a chair, a wooden frame with a high back, covered with leather, and a curious high peak in front, narrow at the base, round which the rider crosses his legs, with a wide and flat top, on which he can lean his body, and round which his pouches are slung. To an inexperienced rider no motion can be more trying than that of the dromedary saddle. The only relief to be obtained from the uneven movement of the creature's shoulders, as it trots, is by resting the body against the peak, and unless it be lifted at each step a violent blow on the chest or stomach is the inevitable consequence.

The ordinary pace of the mahari is a swinging trot, and this it will keep up from sunrise to sunset without intermission, accomplishing with ease 80 miles in a day. Fabulous tales are recounted of dromedaries which have run 250 miles without a halt, and repeated the same distance the following day, but the endurance of even a Touareg could scarcely have sat out such a stage. To protect themselves from the exhaustion of the motion, the Touareg, before mounting, tie a very thick and tight bandage of leather round the stomach and loins. The mahari is fed principally upon dates instead of barley, which can rarely be procured in the desert, and, with a small supply

of this fruit added to the dry coarse herbage of the country, will undergo the severest fatigues.

The dress of the Touareg is very different from that of the Arab. He preserves a long tuft of hair on his head, shaving only round the temples and the back, and always has cotton trousers, not so loose as those of other Orientals, and coming down to the ankles, where they are not fastened. Over these he wears a loose-flowing robe of black cotton, sometimes of wool, which, with his trousers, is confined by a broad leather girdle. Over these is thrown a striped or blue sleeveless cloak, while on the head is a very high red fez cap, with a black turban round it. One end of the folds of this turban is brought over the face and fastened by an ivory pin, so as to expose only the eyes. Even in eating this black veil is never removed, but held from the mouth by the left hand. To expose the face is considered a degradation, and hence, perhaps to mark their inferiority, the women are never veiled.

The Touareg seldom wear shoes; and maintain that it is only those who are too poor to ride who need to protect their feet. I have, however, seen men of the poorer class with skins sewn on to their feet, so as to form shoes, which may wear off, but can never otherwise be detached. These skins are fitted on while moist, and suggest by their shape the idea of a man born in his boots.

Few, excepting the wealthiest chiefs, carry fire-arms. All are armed with a lance seven feet long, and a large and straight double-edged sword, slung like the ancient Highland claymore over the left shoulder. This, by a dexterous and most difficult movement, they draw from its leather sheath as they sit. They wear also a short dagger in the girdle. Besides

these weapons they carry on the left arm a round shield made of elephant-hide, stretched on a wooden hoop, and studded with large-headed nails. This is strong enough to ward off the blow of a sabre, while it leaves the hand free to guide the dromedary. With these simple weapons the Touareg is a very formidable foe even to a well-mounted horseman, for his height on his dromedary gives him so commanding a position that it is difficult to parry, impossible to return his blow, while his endurance renders escape, if the pursuit continue many hours, absolutely hopeless.

It is rather surprising to find how many authorities concur in asserting the Touareg to be *white*—white as Europeans. All whom I have seen, noble as well as simple, are of a very dark-brown complexion, far darker than the Arab, though not more so than a high-caste Hindoo. At the same time they have not the slightest trace of the negro in their features, and are very tall, slender-limbed, and with remarkably small and neat hands and feet. Their lips are thin and noses aquiline.

I have been somewhat perplexed by the positive assertion of Heeren that their language is the Berber—if by this he means the Berber of Kabylie—for it is utterly unintelligible to any Kabyles or inhabitants of the oases. It is called by themselves the *Targuïa*, and is probably akin to the more southern family of Berber languages, such as the Zenatia, spoken at Touat; for the inhabitants of Insalah and Touat profess easily to understand the Targuïa.

Captain Hanoteau, perhaps the only living linguist who has devoted himself to the critical study of the Targuïa, in a communication to the Académie des Inscriptions et Belles-Lettres, is decidedly of opinion

that the Targuïa is the purest existing dialect of the Berber family, and that its differences from the Kabyle have been caused by the isolation of the Touareg, which has preserved them from the admixture of Arabic words, and also from the Arabic idiom, which so largely enters into the Berber of Kabylie. I of course could only judge from the experience that my Kabyle interpreter was unable to comprehend the spoken Targuïa. Captain Hanoteau proposes to publish specimens of Touareg tales in their own language, with a French translation.

As to their religion, though there are no pagans among the true Touareg, yet their Mohammedanism is of the laxest kind. They do not perform the prescribed ablutions, nor do they observe the hours of prayer; and they so far neglect the Ramdan, that in the height of this great fast I have had a Touareg take his coffee, and then light his pipe in my tent at noon, with the utmost unconcern. We never but once saw a Touareg woman; they are said to be free and well treated; and polygamy is either not permitted or is very rare among these purest of nomads. Doubtless there are few inducements in such a life to increase the burdens of the domestic establishment.

Ill as the Touareg are reported of by their neighbours, I cannot but think that their evil qualities are somewhat exaggerated. They are certainly incorrigible robbers; *i.e.*, if they are strong enough to do so, they will rob any caravan which has not paid them blackmail. But I could not learn that they are treacherous to those whom they have taken under their protection; and where there is no blood-feud, as with the Chaamba, the Arabs universally give them credit for being not murderers, only robbers. Their neighbours to the north

and west are, it is to be feared, for the most part, both, when they can be so with impunity.

Still it required a more undoubted warrant than circumstances afforded to justify us in incurring the risks of an expedition among such a people, where, if anything untoward had occurred, help was beyond reach, and by no possibility could information have been transmitted to our friends. Besides, Sidi Zobeir informed us he had injunctions in his letter from the French authorities not to permit us to adventure further than was safe; and he seemed determined to put a veto on any southward progress. We therefore agreed, after a reasonable halt at Waregla, to turn our faces northwards.

Provisions meantime grew scarce. Dates, and dates alone, were abundant. Dates formed our staple. The dogs were fed on dates, the camels munched date-stones, our horses were fed on dates and date-stalks. They certainly exhibited no aversion to their luscious fare. Rest and their rich feeding soon told upon them, and they marvellously improved in flesh, while their coats, generally rough and shaggy from exposure and desert hardships, became sleek as silk.

But while P. sketched and I explored the neighbourhood as far as I safely could, all was evidently unsettled in the city. The kadi appointed by Sidi Zobeir, with French support, was at this time afraid to reside in it, but rusticated in a tent beside his patron, who, with his cavalry, was only here for a short period. He spent much of his day in our hostelry, seated on a couch, the victim of *ennui*, and amused himself by holding my pocket-glass in one hand, and a pair of French scissors in the other, clipping his beard and pronouncing the cutlery "makansh m'leia," not good. However, we

were relieved from the constant attendance of the Agha, who apologised for his neglect, as he was busy in making up the taxes.

One afternoon a party of tumblers from south-west Morocco seated themselves in front of our dwelling. They were of a very different race from any of our acquaintance, and of type most marked;—parrot nose; oblique deep-set eyes, very fox-like; thin lips; muscular, low-set figures; and, in short, of visage very villanous. They were quite as fair as southern Europeans. Their feats were clever, and performed to the music of their tomtoms and a fife. The Agha came out, pipe in hand, and was received with the usual deference. He sat down and gravely enjoyed the fun, rewarding the mountebanks with two dollars. The crowd, keeping at a respectful distance, included some Wareglan women, unveiled, with their hair dressed in long stiff ringlets, and gold pins on each side, but without the knots so peculiar in the M'zab coiffure. The head-dress, as well as the type, seemed to approach the Nubian.

After dinner the Agha came again, and invited us to have a cup of real English tea, informing us by the way that this was an honour his dignity would not have permitted him to confer on any except on persons of the high rank of which he knew us to be. We of course bowed low at the compliment, and presently his coffee-bearer came to our doorway, bearing an eccentric-looking green and red tea-caddy carefully locked, a tall brass coffee-pot, cups, and a large brass tray. Next followed Sidi Zobeir himself, who sat down on the sand in front, unlocked the caddy, and made the tea with his own hands in the brass coffee-pot, putting in at the same time some strong herbs, among which lemon-thyme was very distinguishable. After the mixture had

simmered for a few minutes on the fire, he rose and entered, followed by his suite, and the decoction was served. The Agha told us he got it from Gibraltar, through Morocco, and that *English* tea was one of the beverages most prized in the Sahara. There is a decoction made from a species of polygonum (?), which is well known under the appellation of "Arab tea." This English tea we were informed the caravans of Touat carry as far as Timbuctoo. Unhapplily our host had succeeded by his herbs in effectually disguising every trace of the English or Chinese plant; so we swallowed it and praised it with what face and conscience we might.

We had got to bed rather late after journal-writing and bird-skinning, when past midnight Omar and Ben Miamini, our first mekhasni, quietly entered and roused me, P. being asleep at the other end of the carpet. Squatted on the floor in the dark, they recounted the agreeable intelligence that the Agha's brother had been with them and held a long parley. He had just received the news of his youngest brother's fall in battle. This brother was considered the best horseman of the clan on the French side, and ten days since had been slain in action by another brother, who was the leader of an independent force on the south-west corner of the Oran frontier, and who had been largely recruited by horsemen from Morocco. The conflict was severe, and they stated that the killed and wounded amounted to eight hundred men. Probably this was an exaggeration, but it was enough to provoke a smile to read afterwards in the official 'Akhbar' a gloss of the whole affair, making it a trifling skirmish, in which, unfortunately, a faithful ally of France was cut off.

The Agha, however, was much alarmed. He did

not wish to bring the French column down here from Laghouat, but said that if the Wareglans got to hear of his reverse they would rise at once. He could not get in the taxes, and his brother had been openly insulted in the market-place to-day. As he might probably have to strike his camp and fall back for reinforcements immediately, he recommended us to make our escape as soon as possible and get up to Tuggurt, or any part of the Wed R'hir, where we should be perfectly safe. Doubtless he must have felt us dreadfully in his way, and was doubly anxious for us, as he was responsible to the French government for our safety, and also there was a suspicion at Waregla that we were French officials come down to see him about the payment of the tribute. From this report he thought there might be an attempt made to waylay and assassinate us. But he was most desirous that when we got north we should hold our tongues on the real state of affairs.

His advice was to conceal our plans, to make no apparent preparations for departure, but to be off on a sudden with a good guard as far as N'goussa, only five hours' quick ride. There we should camp within the walls—for the kadi was stanch and faithful—give out our intention of staying, but be ready some midnight to strike tents and decamp, neither halting nor camping till we should reach Hadjira, sixty miles further north. Once there we should be in an orderly and safe country. But the whole region from N'goussa to Hadjira was in the hands of the Chaamba, robbers by profession, who own neither sheik nor kaïd,* and are

* Kaïd, a chieftain superior to a sheik—kadi, a civil judge; the distinction being very much the same as between earl and alderman in England.

looked upon very much as outlaws or rebels. So much for French authority on the frontier. With a prayer for protection and guidance, and a pang of self-reproach at having rashly ventured so far, I turned round to ruminate rather than to sleep on this pleasant and consoling intelligence.

The next morning we received a visit before breakfast from the Agha, who announced the fall of his brother, exhibiting less than usual Oriental sang-froid in speaking of him, while he was harassed by anxieties for himself, and evidently desirous that his French suzerains should have no idea of the hazardous position of his and their nominal authority. He had abundant resources of men and means if he had time to fall back upon his brother's territories in the Oran Sahara, and knew that a month would suffice (as indeed was proved) to quell the spirit of insurrection; but he was more afraid of the assistance of his European friends than of the Marocain horsemen.

For ourselves he courteously unfolded his plans, as told last night, promised two fresh strong camels as a gift in lieu of two of ours which were somewhat broken down, and two additional mekhâsni to strengthen our escort. He, however, made a point of our going out to explore as usual for this day, attended of course, and evidently would have felt hurt had we shown any want of confidence by remaining within doors. I accordingly took gun and botany-box, and rambled through sand-hills and palm-groves, not without the uncomfortable anticipation of hearing a bullet whistle by my ear from behind some bush or ditch. These groves looked to-day dark and uninteresting, their deep trenches forming admirable ambuscades, and, in spite of their extent, fell far short of the more carefully tilled

M'zab. From their recesses I brought down three owls, ill-omened birds, which I had not here met with before.

I extended my walk to the edge of the salt lake or Chott beyond, where were some extensive salt-pans, into which the Wed el Mia oozed from its underground bed, through the saline incrustation which covered the district; and deposited a beautiful efflorescence, some six inches thick, of fine white salt, which a caravan was collecting at the moment, and which is sent through North Africa by the Soudan caravans.

On my return after dusk I found P., who had spent the day in sketching, receiving a visit from the Agha, who had come in state, attended as usual by pipe-bearer, coffee-bearer, secretary, &c. &c. We made sundry farewell presents to our host, his brother, and the kadi, of silk handkerchiefs, bullet-moulds, scissors, and penknives, and distributed around a few pounds of the best tobacco, while Omar divided the accustomed largesses among the retinue. We discovered at the conclusion that it was rather costly to be the guests of a very great man, as his retinue expected to be remunerated rather in accordance with their master's rank than with their own services.

The next morning the Agha's camels arrived, magnificent animals, and capable of bearing three times the load of the "gimel" of the Tell. Two additional armed horsemen attended them, and our convoy was quietly sent off under their escort before breakfast, while we were to follow by a different track later in the day, so as to baffle any ambuscades.

The Agha and his suite came to bid us farewell in our yard, followed by a tray of coffee. Sidi Zobeir sat down in the centre of the court, before the little fire of camels' dung, and motioned to us to follow his example.

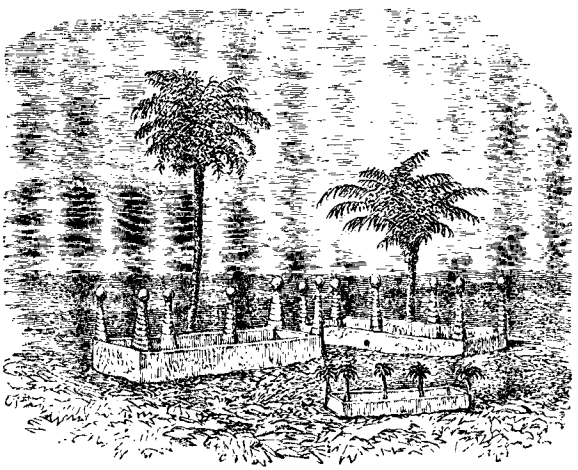
Pipe-bearers charged the pipes of the whole circle, and we smoked in silence. The chieftain produced at length a sheet of paper, handed it to the kadi, who, at his direction, wrote on it as he sat, the paper laid on the palm of his left hand, his reed-pen in his right, and his ink-horn, of the shape of a knitting-sheath, attached to his girdle. He then handed it across to the great man, who read it. Another servant appeared with a red leather bag, which was unlocked with much ceremony by the Agha, who produced from it a large flat silver seal. This was rubbed over with ink by the secretary with his fingers, and handed to Sidi Zobeir, who impressed it on the paper, which, thus duly signed, sealed, and delivered, was our letter of commendation to the kadi of N'goussa.

We were then introduced to our new guide, a sheik, and a relative of the Agha, an open-featured, portly Arab, well mounted and well armed. With five other mounted and armed attendants, we started off, our pieces loaded in our hands, and our pistols primed. As we passed near the city our two original cavaliers rode away on some errand of their own, and we saw them no more till an hour after our arrival at N'goussa, when P., deaf to their apologies, threatened to report them on our return, and to have them broke.

Our route was over a series of mamelons of loose sand, studded with dwarf shrubs; and as we hastened on our sheik galloped in advance, carefully reconnoitring every mound and every bush. I saw many cream-coloured coursers (*Cursorius isabellinus*) running along, but, loaded with ball, had no opportunity of obtaining this rare bird.

After five hours' hard riding we approached N'goussa,

girt with palm-trees struggling through the sand. We passed through a large cemetery, filled with tombs of a construction new to us. Most of them were decorated with six pinnacles, each surmounted with an



Tombs, N'goussa.

ostrich-egg, and the principal graves with large tufts of black ostrich-feathers between the little pinnacles. The city must once have abounded in saints, if we might deduce any conclusion from the number of small neatly-built marabouts. But the sanctity seems now to have lost its odour, to judge from the evil reputation of its inhabitants for honesty.

The outer wall was entered by a dilapidated gateway; and having sent on the sheik to present our letter, we were soon met by the kadi in the open space outside the inner walls, of which there were two, each with a ditch like those of Waregla. It had been arranged that, to facilitate a sudden departure, we

should borrow a tent, and leave our own packages unopened. We picketed our horses under three ruinous archways, while a black camel-hair tent was brought and erected by some unveiled young women of the kadi's household, whose attention was divided between their picket-hammers and the strange Inglezes. While negroes brought us dates and sour camel's milk, the kadi and notables sat round and talked to us of M. Berbrugger, the well-known antiquary, who visited their city in disguise some years since, and was for two months the guest of the kadi, and the only European he had ever entertained. Brushwood was collected for a fire, and a second tent erected in front for our escort. The camels soon after arrived, and our baggage was piled so as to form a shelter to windward, our tent being otherwise a mere roof.

The kadi then conducted us through the city, sadly dilapidated, and more than half in ruins. The side wall of one mosque had altogether fallen in, exposing a long succession of tall pillars and Saracenic arches. The other existing mosque had a massive square tower, with very diminutive cupola sunk in the roof, and, the door being open, we were permitted to look into the temple, with its Saracenic arches, lofty and coarsely built, but not without some grandeur of effect. The streets were curiously arcaded by a succession of sharp open archways, between each of which was the front of a house, built like those of Waregla, and with mastabas at each corner. The inhabitants showed considerable admixture of negro blood, with flat noses and dilated nostrils, frequently plugged with blue cotton, perhaps to keep out the sand.

We rambled through the palm-gardens, all deeply trenched and well supplied with water from the marshes round. The whole surface was white with a crystal-

lization of salt, which is exported, and there were also the same rude manufactories of saltpetre which have been before described. The sand-downs about the city were studded not only with black tents, but with many gourbis, or huts of palm-leaves, beneath which the goats enjoyed protection from the heat of the sun.

N'goussa, which has had constant wars with its neighbours, tells its own tale by the number of ruined villages and straggling palms, the remains of sand-buried gardens, which environ it. The guide we had engaged, while pretending to look for a bird I had shot, showed his honesty by stealing and concealing under his burnous his townsman's cabbage-plants, where, in a small plot by a well, laborious industry had succeeded in raising a few vegetables.

On our return a sheep had been killed, and a sumptuous repast prepared. First, sticks of kabobs were handed under the tent; then a long pole was pushed in with the fore-quarters of a sheep roasted in the embers, from which we cut off a shoulder, and passed the pole to our suite, who left but scanty remnants. Then a huge bowl of first-rate kouskousou, with pumpkins, butter, stewed dates, and a pile of boiled mutton, in succession, for all which we had but little space, though, Dalgetty-like, we knew not where we should dine next.

Afterwards the kadi came in to coffee, with a present of a wax candle, by the light of which he requested me to write a letter to the Agha to acknowledge our hospitable reception. I wrote on the ground, and composed a flattering certificate, though, as none of the party understood a word of French, it was hard to comprehend the exact use of the testimonial. Before taking his leave he arranged the mode of our departure, and promised us the loan of two extra camels, and a couple of

additional guards, as far as Hadjira, to which, although twenty-two leagues off, he told us we must push in one day.

Meanwhile our horses had been well supplied with provender, of which they stood in need, having latterly, notwithstanding their dates, rather starved, I fancy, on their short commons and the Agha's promise of fodder. We were provided with a commendatory letter to the Marabout of Hadjira, a celebrated Mussulman saint; and an armed guard having been placed round our tent, the kadi bade adieu, and we turned in about eight o'clock, lying down in our clothes, with our revolvers on our pillows, and a fox's tail and vulture's head suspended as charms in the centre of our dwelling.

About ten o'clock I rose and looked out to see that all was safe, and found that we had an armed guard of thirty-five men seated round the tent, and all awake. The worthy kadi had not forgotten provision for the way, for there were two large baskets of barley-bread, ghee, dates, and cold mutton laid in front. I turned in again in no very comfortable state of mind, all hope of a Sabbath-day's rest on the morrow being necessarily foregone.

CHAPTER XV.

An early start — Moonlight march — An active guide — Which is the route? — The enemy's camp-fire — Recklessness of Arabs — Halt at daybreak — Skulkers detected — A cavalry charge and capture — The prisoner's story — Traces of a struggle — Dromedary-men — Camels give in — Weary march — Hadjira at last — A Mussulman saint — A quiet resting-place — Escape of a fugitive to the city of refuge — Visit of ceremony — State reception — Devout horsemen — Aïn Bahrdad — Story of a Mekhasni's exploit — A vigilant shepherd — An unhealthy city — Blad et Amer — Nature and art in decay — Descent into the Wed R'hir.

ABOUT two A.M. P. called me. The kadi had given out that we were going to stay a few days, but had made arrangements for us to depart as soon as the moon should rise. The band of Chaamba freebooters hovering in the neighbourhood was about two hundred strong, and for some weeks past they had been robbing and murdering any small party they could surprise. Thus all intercourse with the Wed R'hir had been interrupted. We found the guard on the *qui vive;* the sehaurs were quietly roused; noiselessly, except for the grunting of the camels, the baggage was loaded; the moon had well risen; and before three o'clock the last camel had shuffled off.

We were making the shortest day in the year the longest, and the Sunday the hardest day we had ever had; but there was no help for it, and the endurance of an Arab horse on occasion is marvellous. After a glance at the services of the day we were in the stirrup, and, munching a barley-cake, trotted rapidly eastward, leaving our tents standing and the fire burning, with the guards sitting demurely in front.

A sandy rolling plain tries the horses, as they sink above the fetlock at each step, while the palms, thick at first, gradually scatter, and in about an hour we have left the last palm behind, and find ourselves in the dreaded forest, a forest of sand without a tree, but full of hillocks about three to five feet high, and covered with small scrub of a sort of dwarf tamarisk, and other white and brown shrubs. These afford the most admirable cover for riflemen or marauders.

Here the camels had taken the wrong road, but we put them right in ten minutes. The stupid sehaurs had followed the advice of some N'goussa people, and taken the shortest course (tracks there are none), thus running into the lion's mouth. How the guides ever know the different ways over these boundless deserts without apparent landmarks, is to me a mystery.

Our new guide, a sharp-faced, lean, little old fellow in tattered burnous, mounted on a hot-tempered, wiry horse, leads the van, with his Arab gun considerably longer than himself across his saddle, and a tin can making martial music as it hangs from his peak. The sickly moonlight on the yellow sand-hills gives the appearance of passing over snow-drifts; and the piercing north wind warrants the likeness. We descend into a plain crusted with salt, crisp and cold as hoar-frost, but still occasionally broken by the bushes and sand-drifts. With our camels close behind we edge off to the right, as the left is reputed the most dangerous road. I detect a camp-fire glimmering in the distance, and point it out to the guide. It is suddenly extinguished. Our guide considers this a dangerous sign, for no doubt we are already among the Chaamba. He at once changes our course, and, taking a line between the two ordinary routes, hopes to elude observation.

Before daybreak the camel-drivers nearly mutiny because we will not let them halt and light a fire. Poor fellows! they have eaten nothing, and their feet are benumbed and frozen; but the risk is too great; a fire before sunrise would inevitably betray us; but Arabs are very children, and scarcely capable of self-control, except under the pressure of visible danger. Our guards have to ride at them and threaten to push them on with their guns.

At length a little before seven o'clock the day breaks, and as soon as the sun has dispelled the grey mists we halt, and partially thaw by a blazing fire; while the cavaliers undress, turn their shirts, and are made comfortable in clean linen for the day. We ride on close in front of the camels, scrutinizing every bush and hillock, and keeping a sharp look-out, not without various small alarms. On a sudden we detect a figure skulking behind some bushes to the right. At the same moment our first mekhasni descries another to the left. They are enemies, or they would not so conceal themselves. He immediately halts the cavalry, and finds that Ben Yah Miamini has forgotten to load. His chief gives him a stern rebuke for his carelessness, and we ride on.

Again our leader and I discover at the same moment another figure dodging from left to right. Another and a third are perceived far a-head to the right. We are among the robbers; it is an ambuscade; they are collecting for the attack; we must dash through them. Press on the camels, or they are lost. Our mekhasni turns round and passes the word, "Follow me, shoot every armed man, and keep together, if you value your skins." He points to a little mound, behind which an armed figure has disappeared.

Putting spurs to our steeds, and throwing the bridles on their necks, we are off in single file at a tearing gallop, guns ready, and a couple of bullets in each mouth for a second charge. (A wet bullet easily drops down the barrel, and saves the trouble and delay of a wad.) It is evident the enemy had not expected us so soon, nor in this place. They are trying to collect their scattered forces, and we are in their midst. A dash must be made before they can muster; and with eyes and muzzles directed towards the hillock we soon pounce upon the skulker, not before he has had time to bury his weapon in the sand.

He is a tall, ill-favoured Bedouin, confesses to being a Chaambi, and trembles before us, the picture of abject terror, while he protests he is only looking after his dromedaries. Are we Touareg? No, M'zab. He is reassured, for no quarter dare a Chaambi expect from a Touareg, and such from our black over-burnouses he had taken us to be.

We catechize him on the others we had seen. "By the tomb of the Prophet," he is but a lonely camelherd, and has not a comrade within a day's journey. We have seen them, and know not how many may be lying at this moment within shot, but there is no time for parley, and we will not be the aggressors. With a muzzle at his breast we detain our captive till the camels have come up, warning him that, if a shot is fired or another man seen armed, his life is forfeit on the spot. We then compel him to signal with his burnous that it is peace, and that we are friends, and march him on in front of us for a little way, till, hoping his comrades must now be in the rear, we leave him duly impressed with the abundance of our arms.

On again. Soon we come upon the traces of a camp and the remains of a fire, apparently of last night, and further on are the tracks of a few camels, and marks as of a struggle of men on foot. Shortly after we make out some goats and camels far away to our left. There then must be the head-quarters of the brigands. How those peaceful herds alarm us! Harmless as they are, they belong to dangerous owners.

All the men we had observed had been pushing on to cross in front of us from the left to the right. The manœuvre is now explained. They had left their herds with a portion of the tribe as guards on the left-hand track, while the main body of the warriors, with the fifty formidable dromedary-men, had awaited the passing of any caravans on the right-hand road, the most frequented route, three or four miles on the other side. It was to bring up the mounted robbers and to collect their divided forces that the skulkers had been hastening to cross our path. Can we emerge from the forest before they overtake us? Our horsemen show great uneasiness, reconnoitring every mound and bush, and urging on the camels to the utmost. What if yon seeming tall branch should prove the vidette of the dreaded dromedary-men! With the best of horses it is vain to attempt escape from the dromedary, much more with our wearied steeds. While a sudden burst may distance the pursuer for a time, the keen eye of the nomad follows the track, and in a steady swinging trot or rather shuffle of six miles an hour he at length overtakes his victim, and, mounted several feet above the horseman, deals blows which it is difficult to parry, impossible to return.

And now one poor brute, true to the perverse contrariety of his kind, breaks down at this critical moment,

and we must leave him, and hastily distribute his burden among his growling brethren. About 10 o'clock we ride on a little in advance, halt, dismount, give our horses a morsel of barley and handful of dates, and sponge their mouths; ourselves hastily washing down with water some of the N'goussa cold mutton and barley-bread stored in our saddle-bags.

Another quarter of an hour and we mount again. The camels have meantime passed us, and we must not suffer them to get too far ahead. For eleven hours we have been pushing our way through this dangerous scrub like men in the dark, when another camel falls. Fortunately he is charged with water, which we stow in our horses' stomachs, and the ill-thriven beast continues to struggle on.

At length we are pointed to a range of sand-hills, after which there will be neither cover nor scrub, and the danger will be passed: it is well, for we have now to travel slowly, as three more camels show symptoms of over fatigue, and we cannot sacrifice either them or their burdens. Soon after three o'clock we thankfully reach the line of safety, and rise into a bare plateau.

In two hours and a half more we came in sight of the quaint little Arab city of Hadjira, and sent on a horseman with our letter. Below us was the wide bed of an extinct river running from west to east, studded with scanty palm-plots, thickening here and there into denser groves. The rest of the panorama presented in the pale light of the setting sun the appearance of a troubled sea with large rolling waves. In the midst of it abruptly rose a rock on the top of which was perched the holy city of Hadjira, alone in its nakedness and desolation, large looking, a fenced city, but containing on examination not 50 houses.

We saw a procession winding down the rock-side to meet us, the marabout, Mohammed Ben Hadj Ali, being at the head, followed by two stalwart negroes and other civic worthies. Our suite dismounted, kissed the burnous of the marabout (an honour they had not vouchsafed even to the Agha), while we contented ourselves with shaking hands from horseback. The priest conducted us up the hill into a low flat-roofed house planned exactly as our late abode at Waregla, and here in a windowless but clean room we found a carpet spread for our reception.

We gladly dismounted and were bowed in, dates and camel's milk following as usual. The holy man saluted us by touching his chest after shaking hands, whereas even an Agha would have kissed his fingers. He apologized for the poverty of the town, but assured us he would do his best to entertain us, and certainly he made liberal provision. Corn speedily arrived for our eight horses and excellent kouskousou for ourselves, but after more than fourteen hours uninterruptedly in the saddle, and eighteen of such tension and anxiety, appetite was gone. If a man never before appreciated the luxury of *tea*, he will learn it in such a case, and bless the provision of the aromatic herb. My little teapot, from which, spite of P.'s jokes, I had never parted, was welcomed to-night by both of us alike, and with pistols and weapons laid aside I stretched my sheepskin in the doorway under a bright starlight night. In the lesson for the evening service occurred the verse, "My people shall dwell in a peaceful habitation, and in sure dwellings, and in quiet resting-places." We were in a quiet resting-place at last, safe from the perils of robbers.

But sleep came not, and during the night I heard an arrival in the yard and much chattering. On

my inquiring the cause, Omar informed me that a young man had just come in to share our shelter, who stated that yesterday he was with two laden camels and two other men, four armed companions being a little in the rear, when, at the spot where we saw the traces of a camp-fire and the marks of a scuffle, they were attacked by the Chaamba, his companions seized, and the camels driven off. His friends were pinioned, and he saw the guard attacked from behind, but, from the firing he heard, he thought the latter might have escaped towards N'goussa. He concealed himself, and had been pursuing his way without sleep for thirty-six hours through the wilderness till he arrived here.

This man afterwards informed us that the chief camp of the brigands was on the right hand by the road. We must therefore have passed through the centre of the band, who had evidently been watching us, and a halt for breakfast or the slightest imprudence would certainly have cost us our camels, probably our lives. We could not have detected an ambush twenty yards off in the scrub; but from our taking neither of the accustomed lines, the robbers were baffled, and had not time unobserved to bring up a sufficient force on either side to attack a party so strongly armed as ours. They certainly loved a whole skin, for, considering that they could muster fifty dromedary-men, we must have succumbed to a bold attack.

We learnt at Hadjira that the same band had lately driven off, after a short struggle, an entire caravan of camels near Ghardaïa, under the very palm-tree where we breakfasted on leaving that city. From their acquaintance with hidden wells, they seem like the Touareg able to subsist in any part of their wide territory.

The morrow was spent in preparing for our next march. The attendants were occupied in exchanging four of our camels which had broken down for four weakly ones, with which we were compelled to be content, since all the best had been sent up to Tuggurt as baggage animals for the French column now for the first time on its way south. I was rewarded during a saunter among the palms by obtaining nine specimens of a new desert sparrow. The marabout fed us well, sent us flat barley-cakes for our journey and a marvellous dish for dinner, a fowl and a hare stewed in apricots and capsicums, with date conserve for dessert.

In the evening we received an intimation from the hospitable saint that, as he could not enter any house but his own or a mosque, he would take it as a compliment that we should call on him. Filled with his good cheer, we could not refuse; and wishing to do his Reverence all due honour, we set out "en grand tenue," *i. e.* with fez caps and red slippers, our pistols in our belts as a substitute for the rapiers of court costume. Six retainers of the marabout led the van; then our mekhasni, who, by the way, had produced their beads for the first time, and ostentatiously said their prayers, ever since they had reached the sacred city; then Omar; and lastly ourselves.

We met the marabout and his friend at the door of his mansion, but he could not invite us further, on account of his wives, who occupied all the apartments. After delivering compliments, and impressing on his mind that we had never paid like honour to any dignitary before, we produced our commendatory letter in acknowledgment of his hospitality. This he requested us to read in the dark, which feat being beyond our power, a candle was at length brought out by a closely-veiled

female. As I read and Omar interpreted, the holy man leant his head against the wall and smiled satisfaction at each sentence. P. meanwhile indulged his taste for physiognomy, and scrutinized him, pronouncing him a mixture of negro and Berber, very amiable in countenance, in short a Melano-Gætulian, with short nose and broad face. He regretted that he could not supply more barley for our horses, and therefore we had better make an early start on the morrow, when we should have an escort of four men.

We had but a short night's rest, for Omar demanded the sheepskins to load at 4 o'clock, when I had turned in after rousing the sehaurs, flattering myself they would require, as usual, two hours to prepare. But, as the camels could not mount, the baggage had all to be carried down hill. We mustered at the foot of the rock by 5 o'clock, a strong cavalcade, with fifteen camels, seven sehaurs, our five horsemen, and one dromedary-man sent as guide and guard, Hadjira boasting neither horse nor horseman. No wonder therefore that barley was scarce. The desert and the day were like others; but from the habit of keeping a look-out, even a dromedary's head in the distance put all our videttes on the qui vive. Still the Chaamba do not often venture so far north.

A solitary Arab overtook us and joined our party for protection on his way to Tuggurt. As he had no provision with him, I asked him how he expected to live on his journey. Opening his lips and showing two rows of the whitest teeth, he quietly remarked, "Allah, who made this mill, will find the corn for it to grind." A tolerably broad hint that we were expected to act the part of Providence for him for this time. We were now in a quiet country, for we passed one small convoy and

were passed by another, both on their way to the Wed R'hir.

We made our noonday halt by a small lake not noted in the map—Aïn Bahrdad, a most interesting spot for the naturalist. On a mound near it were the ruins of an ancient Arab (?) fort, and a well of water rather brackish but potable. The lake was salt, and probably dry in summer, for it was in places encrusted with salt, and the edges were thick with it; but unlike any other chott, there was thick swampy vegetation, with reeds and tall tamarisks, all round it, a wonderful variety in this country. It swarmed with birds, and I obtained at once a new species of Drymoïca, or fantail warbler, and several others of extreme rarity. There were three distinct species of tamarisk, but none of them in flower yet. We were about a month too early for the botany of the district. Gladly would I have stayed two or three days to have explored the fauna and flora, but P. had already breakfasted, and he had had enough of the Chaamba to satisfy his curiosity, which would not stoop to birds and plants. I can only, therefore, suggest to any enterprising naturalist traveller that he will probably be repaid by a day's halt at Aïn Bahrdad.

During the afternoon we met an Arab on foot, who told us he was sent to Hadjira to call in all the camels for the French troops expected in a few days at Tuggurt, on their way to chastise the Chaamba, and to put down if possible the rising troubles at Waregla. To catch the former would probably be a "chasse" beyond the hunting power of even the Chasseurs d'Afrique.

We were forced to travel further than we intended, for there was no holding-ground to be met with for tent-pickets, the plain taking the shape of a rolling sea instantaneously petrified, and its foam as instanta-

neously crystallized into salt. At length we came upon a spot where the wind had swept the sand away from its gravelly bed, and exposed a layer of gypsum, and here we made ourselves at home for a night, with brushwood for a fire, after a dinner of rice and boiled biscuit, in good order to meet either thieves or brigands.

Monotonous as a desert could make it was our next day's journey, but we relieved its tedium by observing the tracks of its various travellers—the long taper hoof of the gazelle, the club-footed double impression of the ostrich, the trail of the serpent, lark tracks, and those of the wagtail, the spurred boot of some Arab cavalier who appeared to have lost his horse, and, strange to add in such an open expanse, the large round paw of the leopard.

Our cavalier who had forgotten to charge his piece on leaving N'goussa, being somewhat "chaffed" by his comrades for his omission, recounted to me the following tale of prowess as a proof of the advantages of tardiness and negligence. He had once been sent as escort to a flock of sheep, but, having lingered half an hour behind his charge to roast himself by the camp-fire, he found on coming up with it that the flock was divided into three parts—one running wild, another with the shepherds, and a third in the act of being driven off by four armed Arabs. Priming his firelock, he rushes manfully to the rescue, pulls trigger, and flash goes the pan without any report. The robbers flash likewise with similar success. He himself then runs away like a man, but with Parthian valour bethinks himself of loading and returning. Having essayed a shot at easy distance, he declares the marauders, who were searching for their ammunition, ran away. His conclusion, perhaps

a just one, is that Arab guns are not intended to go off at the first charge.

We rode across the bed of the Sebkha Neklat, a long expanse of firm and rather moist sand, which had evidently not long since contained water, and over which we enjoyed a gallop for several miles. At its extremity the white-domed marabouts standing out from the dark palm-foliage revealed the position of the village or city of Blad et Amer, where our cavaliers had decreed we should levy a dinner. We came upon an Arab village outside the walls, and a quaint village it was, composed partly of built houses, partly of black tents, the houses having all the appearance of huge square packing-cases pitched upside down promiscuously as chance or fancy dictated, made of unburnt brick, windowless, and, unless on very close inspection, seeming doorless also. Still it was a busy scene—ragged women milking goats, the sound of the quern within the tents, and of the shuttle at the doors, while among innumerable pariah dogs several majestic-looking gazelle-hounds came gravely forth, carefully sheeted, to have a look at the strangers.

But how shall I describe Blad et Amer itself? Not only the buildings, the very water, the very vegetation, was, if possible, decaying. A broad ditch, green and fetid, fringed with a crystallization of saltpetre, and inhabited by a few snipe and sandpipers, surrounded a jagged and crumbling wall, well pierced and loopholed by time. Here and there was a tower or the remains of one, threatening a dusty death to any adventurous defender, and worn down in many places, perhaps by the occasional rains, to a thickness not exceeding six inches. Well may such a city be the annual pest-hole it is said to be from African fever! The

houses within were so low and the streets so narrow, that the very curs on the roofs on either side snapped at our faces as we rode along.

Arrived at the souk, we met a body of townsmen, and after a parley were conducted to the kasbah, which even Blad et Amer boasts, and were promised breakfast, though the kadi was absent. We passed through no less than three quadrangles before reaching the townhall of the city. In the outer court the horses of our guard were arrested—ours were permitted to reach the second, and there supplied with barley. Our chamber was a long windowless room with recesses between pillars, and raised mastabals in each; and in the darkness of the lower end a mysterious door, through which issued, from time to time, men, women, children, asses, everything but kouskousou; so leaving P. to wait for it, I contented myself with dates, and went to shoot in the marsh. Having tried, I fear, beyond any reasonable powers of endurance, the patience of my friend, we set out on my return at once for Tuggurt, which, being fourteen leagues distant, we could by hard riding reach before midnight, and where, within the limits of civilisation, P. was most anxious to spend his Christmas. We crossed a little ridge, and were now at last in the Wed R'hir, not strictly a wed, but a vast depression of many miles in width, and extending upwards of a hundred miles from south to north, from Blad et Amer to the Chott Melr'hir. It has a gradual and almost imperceptible descent of about 400 feet, and possesses everywhere water attainable by artesian wells at varying depths, but never on the surface.

CHAPTER XVI.

Tuggurt — Confines of French dominion — Native troops — Hungarian sergeant — The palace of the Bey — Miscellaneous inhabitants — Imperial furniture — An ancient throne — Visit of the Bey — Arrival of French column — Varied equipments — The camp pitched — Why do we travel? — Night stroll in the camp — Christmas cheer — General Desvaux — African falcons — Cotton — Meeting with a countryman — Political ideas of a native soldier — Marshes and lake of Tuggurt — A new fish — Geological speculations.

We left Temaçin, with its towers and minarets peeping through the palms on the right, and pressing quickly on, with many a gallop on the hard bed of the Sebkha, mounted some sand-hills and entered the palm-groves of Tuggurt in good time. Among the scattered palms and Arab tents of the suburbs we were greeted by some Tirailleurs Indigènes, whose costume, Arab though it was, proclaimed at once that we had returned to the outskirts of French dominion. The swarthy warriors advanced and shook hands, giving us a hearty Bedouin greeting, and evidently looking upon us somewhat in the light of bold adventurers. The tricolor floated over the gateway and the mosque-towers, and as we passed under the gate we were welcomed, in German, by a sergeant of Indigènes, who conducted us to the kasbah, where we were installed in two pleasant apartments.

The Bey (Ali Bey) was absent, having gone to meet the French column, which we found was expected here to-morrow from the north; but his deputies, the kadi and the khalifat, came to pay their

GATE OF TUGGURT.

To face page 268

respects. The sergeant, the sole representative of French power and of Europe in Tuggurt, invited us to supper; but P., feeling we must now assume dignity, demurred to accept hospitality from a non-commissioned officer: I, however, had no scruples, and insisted upon overcoming his; and we found him an intelligent Hungarian refugee, who had taken service in the Foreign Legion, and thence been promoted as sergeant in a native corps. He was a stanch adherent of Bathyani and the old Hungarian party, but a bitter foe to Kossuth, to whose presumption and violence he attributed his own and his country's ruin. He gave us the summary of the public news of the last four months, of which, of course, we knew nothing; but which, percolated through our Hungarian's résumé of the 'Moniteur de l'Armée,' sounded uninteresting enough; and we then retired to our apartments in the palace, rejoiced to think we should open our eyes on Christmas morning under a roof, and with some prospect of receiving letters in a day or two, when the French column should arrive.

We were roused in the morning by the martial music of the Indigènes below, for our Christmas carol; and, as soon as we might, took a survey of the city. The kasbah, or fortified palace, occupies the whole southern portion of it, and has a separate inner line of circumvallation and fortified towers. It is separated from the souk, or market-square, by a low wall and wide shallow ditch, to which we descended by flights of steps or by slopes. Some European captive, in ages past, must probably have been employed as architect, since this side presents the outline of a bastioned fort. The wall is of masonry, tolerably solid and loopholed, and has been repaired since the French conquest.

Entering the outer gateway, we found ourselves in a large courtyard, where picketed horses, unpicketed mules, inquisitive ostriches, grunting camels, nimble little donkeys, and ragged boys, jostled in hopeless confusion amidst piles of commissariat barley-sacks, biscuit-cases, pork-casks, and all the victualling incidents of a campaign. A long vaulted passage led from this to a more peaceful quadrangle, carefully sanded, and reserved for horses of high degree.

From this we entered the square reserved for man, the arcades of which were occupied by commissariat stores. A dilapidated earth and stone staircase, the steps of which had had various feuds and had retreated in different directions, led up to an open terrace. On one side was our door, on the other that of the French sergeant-commandant, and various other open arcades.

Above was another story, most of the rooms being open in front to the verandah which ran round, and occupied by the family of the Bey as their private residence. Our own apartments had whitewashed walls decorated with the rudest of Arab frescoes, and were garnished with but two pieces of furniture—one, a gigantic imitation of a bedstead; the other, an antique stiff-backed armchair, elevated on a stand, the ancient throne of Tuggurt. Both of these were striped and daubed with paint in very glaring patterns, yellow and red predominating, to match the designs on the wall. One side was chiefly covered with texts from the Koran, while the further end was partially papered by old sheets of the 'Illustrated London News,' daubed, ad libitum, with red paint. Two holes in the wall, accommodated with rickety frames on which thick calico was stretched, assisted in keeping out the light and letting in the wind. A rich pile carpet almost concealed

the earthen floor of the second or inner room, and a long brocaded purple silk cushion, richly worked in gold embroidery, formed a pillow for P.'s couch. Over the throne was a loosely fitted cover of tattered crimson velvet and green silk; and these, with a few rickety shelves near the window, completed the furniture. Of course the room was unceiled, and bits of clay were perpetually dropping from the djereeds, or dry palm-leaf laths, which were supported by rafters of rough split palm-trunks.

I have been thus particular in description, because these were the state apartments of the Bey, as they had been the reception-rooms of the deposed Sultan; and my brushes and shot-belts were actually lying upon what was, two years before, the throne of state of a monarch who gloried in the Imperial title! Excepting these rooms, the rest of the kasbah, with its endless covered passages, gates, and courts, seemed to consist chiefly of open chambers with few doors and fewer windows.

We were sitting at breakfast when in burst a young man of coarse features and swaggering gait. He was dressed in red leather boots, pink cloth bag-breeches, gold embroidered sash, and jacket and vest dark crimson covered with gold. He wore a dark burnous over all, the inside of which was lined with crimson silk, also heavy with gold. This was the Bey himself, who had ridden on in advance of the column. He introduced himself as our host, and lolled about on the cushions where we had slept, while five or six retainers squatted, according to their respective ranks, either on the carpet or in the doorway. Little Arabic as I mustered, I found his highness very heavy to entertain, and neither party was sorry when the interview came to an end.

At ten o'clock we went outside the walls to an open sandy plain to meet the French division, whose approach was heralded by the roll of distant drums. First came a cloud of spahis in their picturesque habiliments, uniform yet varied—rich and ragged saddles, long guns, red cloaks floating in the wind, and swarthy faces peering from under the white head-dress. Then the General and suite at the head of the 3rd Chasseurs d'Afrique, a fine wiry well-mounted body of really light horsemen, with light grey cloaks covering their blue and red uniforms, and white rolls of cotton twisted round their kepis. A body of blue-and-yellow-clad Indigènes followed on foot, some artillery with a battery of light 6-pounders, and then the 99th de la ligne, a corps of very shabby-looking French infantry. The "Goum," or irregular levy, in black burnouses and red boots, with a black and blue embroidered standard in their front, rode with the usual irregularity of irregulars to the refrain of pipe and tambour. The General Desvaux, after saluting some "Indigènes" on a mound hard by, rode up and courteously welcomed P. and myself. He is a fine soldier-like man in the prime of life, stern, but with affable and polished address.

In an inconceivably short space of time cavalry were picketed, droves of 2000 camels in the rear unloaded, tents sprung up like mushrooms, yet planted on a regular system, from the diminutive "tente d'abris" of the private to the well-pitched marquee of the officer. Every man seemed to know his business and to do it; and the soldiers were burnishing their arms, lighting fires, and preparing breakfast, as though they had been camped for a month.

We returned to have service together, but for the entire day afterwards our lives were scarcely our own,

from the incursions of beys, khalifats, sheiks, and French officers of all grades. All appeared to look upon us as public lions, returning from the Ultima Thule of French power. The Arabs wondered how we had saved our lives from Chaamba and Touareg with so small a party. Why we travelled, and what we found "pour manger," the Frenchmen could not divine. It was in vain to repeat that we travelled for pleasure; ate kouskousou, and survived; kept a look-out against bandits, and were comfortable. A shrug of the shoulders, with "Voilà le sang froid de ces Anglais!" was the only possible key to elucidation.

At nightfall we again wandered through the camp, and watched its various humours. We came on the spahi, quarters, where the Arabs were dancing solemnly, and by their very gravity upset ours; while the by-standers, or rather sitters, were singing and chatting incessantly. We kept Christmas night by ourselves on kouskousou and water, but afterwards made punch in my little teapot with two oranges I had secured at Waregla, and a little "esprit" filched from my store for perserving animals; and so, solitary in the crowd, strangers in a strange land, we closed our lonely Christmas, and pictured and thought of our English homes and our far-off wives and little ones.

The next morning we breakfasted by invitation with General Desvaux, and tasted wine and European dishes for the first time for months. The party consisted of his aide-de-camp, an attractive intelligent gentleman, and le Prince Périgord de Talleyrand, a great-nephew of the versatile diplomatist, and a lieutenant in the 3rd Chasseurs d'Afrique. The general was affable and communicative, and determined to please. He looked for the day when Algerian cotton would compete with

American in the Manchester market;* talked much of England; pronounced Wellington's Despatches the first military manual of the age; lamented the want of colonial enterprise in his countrymen, and illustrated this by a comparison of the state of the two Canadas; exhibited a profound knowledge of African discovery and travel; was thoroughly up in Dr. Barth; pumped us keenly on the state of affairs in the South, and especially at Waregla, whither the column was going for the first time, to ascertain, as he said, the practicability of artesian wells; and, finally, sent us home with the loan of a pile of French newspapers, and the French abridgment of Dr. Barth's Travels, just received by courier.

An Arab officer of spahis had brought his stand of falcons with him; the aide-de-camp kindly conducted us to his tent, and I found, to my surprise and pleasure, a mews of seven well-trained birds of the scarcely known sakkr falcon (*Falco sacer*), the largest of the genus next to the gyr falcon. The birds were perfectly docile, and made short flights when unhooded, returning to the wrist at the word of command. I learnt that the district where they are found in a state of nature is very limited, being only the southern spurs of the Atlas, between Biskra and Bouçada. But I never had the good fortune to obtain a specimen there, though I have seen them on the wing.

* The cotton of Algeria is of very fine quality, and quite equal to the finest American samples. I collected samples of about sixteen varieties, which were forwarded to the Manchester Cotton Supply Association; and Mr. Haywood, in acknowledging their receipt, observes, "There are some choice specimens, fully bearing out the opinion of the advocates of Africa, that very first-rate cotton can be produced by the natives." Of course, the limited extent of soil adapted for its cultivation must prevent cotton ever becoming the staple of Algeria.

As we returned through the souk we noted that the commissariat authorities had promptly set up a tariff of prices of all edibles and necessaries for the troops, which, written in French and Arabic, might be seen posted at each gate. A very fair tariff it was; perhaps a trifle above the ordinary prices of the town. We were glad to take advantage of it at once in purchasing a supply of carrots for our horses.

We hurried home to glance at the papers and read Dr. Barth. Strange how locality can change the centre of interest! The latest news (and we had not seen a paper for three months) was tame and uninteresting by the side of Dr. Barth and the map of the Soudan.

Among other visitors this morning we had a call from a corporal of "Indigènes," who, hearing we were English, came to introduce himself as a countryman, and startled us by saluting us in our mother tongue as he entered. But not only was he a countryman; I soon discovered he was a brother Northumbrian, and his mother one of a family with whom I was acquainted. His brother was an officer in the French service, and he expected his commission soon in the Foreign Legion, having enlisted with that view. He was not the only stray compatriot with whom we met in these miscellaneous regiments.

We went out with him afterwards to a wide, open salt lake, swarming with duck and snipe, in order to get a dish of game as an acknowledgment for the general, and found plover in abundance. It seemed to be headquarters for many of our rarer English ducks, such as the white-eyed and red-crested, but there were many flocks also of tufted duck and widgeon, which, in six months, would probably be disporting themselves far beyond the Arctic circle. As in the rest of the Wed

R'hir, there was luxuriant vegetation in these marshes, a feature peculiar to them among the "Chotts" of the Sahara; and many kinds of mesembrianthemum, statice, salsola, and other succulent plants, were already in full blossom. Their leaves were generally encrusted with saltpetre, and the water was intensely salt, the artesian wells here being about fifty yards in depth.

It was a strange Christmas scene in the bright sunshine under our windows this afternoon. Arab boys in the courtyard basking, nearly naked, in the sun; negro boys, more energetic, playing at leapfrog; knots of French soldiers led by our friend the Hungarian sergeant to see the lions of the place, looking like excursionists in the hands of a cathedral verger; tame ostriches dodging among them to pick up the date-stones they dropped as they sauntered by; veiled women milking cows and goats; commissariat donkeys and stately sheiks; while all seemed to concur in staring at us as the strangest beings of the lot. We were amused to hear that our fame had preceded us by the report of some Arabs, but our country was not known, only that we came from the far land, and did not dress like Frenchmen. It was conjectured that if we were not white Touaregs we must be Turkish officers who had contrived to penetrate south by the side of Tunis, especially as our fez caps were Turkish and not Algerian. This was, so far, correct.

The next morning the French troops had struck tents, and with their train of miles of camels were off by sunrise, leaving the place desolate. I divided the day between the exploration of nature outside, and of man within the walls, and to aid me in the former obtained the company of an Arab corporal. He spoke no French, but was voluble in his own tongue, giving me

a long account, which I could only partially understand, of the wrongs of the natives. He had the English medal, and the military medal also, which he had well won, having been twice wounded at Inkermann. Though wearing a French uniform, he expressed his ardent hope that the day would come when the English would take Algeria, and divide it between themselves and the Sultan, as they were the only two powers who knew how to treat the Sons of the Faithful. He looked sadly disconcerted at my want of sympathy and my assurance that "Inglez mafish hinnè arrhua," that the English would never come here.

Though I was not rewarded for my wading through the swamps by any of the beautiful white egrets which had tempted me forth, I made some interesting discoveries in a small way; obtaining several new species of fluviatile shells, a new melania and melanopsis, and others, one of which I also obtained in the north of the Sahara in a semi-fossil state; but especially a fish of a new genus which abounded here, and which has been described by Dr. Günther in the Proceedings Zool. Soc., 1859, under the name of "*Haligenes Tristrami*." This discovery was to me peculiarly interesting, as casting some light upon the geological theory of the Sahara being the bed of an evaporated Tertiary ocean. As the Wed R'hir is lower than the Mediterranean level, and probably the lowest depression in the whole Sahara, may not this fish, belonging, as it does, to the strictly marine family of the Chromidæ, be the last lingering living relic of those forms which must have swarmed in these seas before the great but gradual elevation of Northern Africa drained this ocean into the Mediterranean by the Gulf of Cabes? It seems probable that

this gulf, between Tunis and Tripoli, formed the outlet, since on this coast, for a space of near 200 miles, there is no high land between the Mediterranean and the Sahara, merely long ranges of drifting sand-hills, about 300 or 400 feet high, while between Tuggurt and Chott Melr'hir the level of the land has been calculated to be as low as seventy feet below that of the sea.

CHAPTER XVII.

HISTORY AND DESCRIPTION OF TUGGURT.

Doubtful Roman remains — Tuggurt the metropolis of the Wed R'hir — Allusions of Shaw and Leo Africanus — Political constitution — A fortunate shepherd — Wars with Constantine — Capture by General Desvaux — Deposition of the Sultan — Mussulman Jews — Jewellers — Massacre of the Beni M'zab — Ruined mosque — Horticulture — Trade and commerce — Ancient artesian wells — Pestilential miasma — The Dour, or "Turn again" of invaders.

OF the history of Tuggurt nothing accurate was known before the French conquest of Biskra in 1848. Indeed it may be questioned whether any European, except perchance a captive, had ever visited the Wed R'hir—certainly Dr. Shaw had not;* and, copious and accurate as are his descriptions of many districts he had never

* It is evident that, though Dr. Shaw visited the whole sea-coast of Algeria and Tunis when accompanying the army of the Dey, yet he never penetrated far into the interior, and he never, throughout his work, asserts his personal knowledge of those regions. There are trifling mistakes in the copying of many of the inscriptions given in his Travels, especially of those from the interior of Tunis. Now there exists in Tunis a MS. account of the interior of that Regency in the Spanish language, apparently the work of some ecclesiastic. This volume descended to the late Dutch consul from his grandmother, the widow of a former consul. This old lady, it is traditionally stated in her family, was personally acquainted with Dr. Shaw, who remained for some time in her house. The MS. contains all the inscriptions from the interior given by Shaw, as well as many others, and the very inaccuracies in the Doctor's work are all to be found in it. Mr. Davis, in whose possession the MS. I believe now is, stated to me that there is internal evidence of its being of a date antecedent to Dr. Shaw. If this be so, we have here indisputably the source whence the worthy Doctor derived his information of those districts which he had not been able personally to explore.

seen, he dismisses the "Wadreag" in one short paragraph, merely mentioning the artesian wells, of which he had heard from Arab travellers. Yet the French antiquarians identify it with the Turaphylum of Ptolemy, and the Techort of Leo Africanus, who seems to have been intimate with its sheik.

There is one argument for its Roman origin which it is difficult to overcome. The kasbah is built of dressed stone, and is the only edifice so constructed in the whole Sahara. Whence came the stones? There are no traces of any quarries in the neighbourhood, and to hew and dress stone, when unburnt bricks would serve their purpose, is very unlike the character of the present race of inhabitants. It is maintained that the kasbah has been built from the Roman materials at hand; but, so far as I am aware, no coin, no inscription, no coffin, has yet been found to corroborate the hypothesis. M. Berbrugger, the first living antiquarian of Algeria, is decidedly of opinion that nothing but the most complaisant imagination can discover Roman remains in the Wed R'hir, but suggests the possibility of native chiefs having employed Roman artificers.

Tuggurt, with a population of somewhere about 8000, was long considered the chief of the twenty-five towns which dot the line of the Wed R'hir. Its monarch, called by the high-sounding title of Sultan, though absolute in his own city, had no more than a feudal superiority over the others in time of peace, so long as they rendered their accustomed tribute. He was assisted by a djemmâa or council of sheiks, presided over by his khalifat or prime minister. The authority was hereditary in the family of the Weled ben Djellat (Sons of the Flock), which, according to the legend, attained the throne by a chance which recalls the story of the arrangement of Darius and the Persian princes.

The old royal family had become extinct, and the inhabitants, exhausted by faction and internecine warfare, agreed unanimously, as the only mode of restoring peace, that the first stranger who should enter the city on a certain day should be saluted Sultan. A poor shepherd driving his flock from the desert was the first who, on that morning, entered the gate, and found himself a king. He seems, however, to have proved himself a good one; and doubtless the Rouar'a, as the inhabitants are called, were happier in their election than many greater states who have caballed for their President, or balloted their Emperor.

The last Sultan had a long minority, during which his mother, Leila Aïchouah, governed in his name, an exception certainly to ordinary Arab ideas; but Leila seems to have been altogether exceptional; headed cavalry and fought battles, and, in more ways than one, was a desert counterpart of Catherine of Russia. Her army consisted of about four thousand men, besides the Sultan's body-guard of fifty horsemen and five hundred infantry in constant attendance.

The principal military boast of Tuggurt is that, in A.D. 1789, it resisted for six months the besieging force which Salah Bey, Bey of Constantine, headed in person. Salah was induced to make the attempt by the proposals of a renegade relative of the Sultan's, who offered, if he would pay him 200 douros for each halt between Constantine and Tuggurt, to repay a *thousandfold* when established on his brother's throne. Salah Bey was not proof against this golden bait; but Tuggurt sustained a six months' siege; nor did it yield until all its palms had been cut down and the defenders exhausted by famine. It is a proof of the wealth of the place that the usurper was actually able to fulfil his pledge, and a yearly

tribute of 200,000 dollars was afterwards exacted. But Salah's successors were less formidable, and at the time of the French capture of Constantine the tribute of Tuggurt had fallen to 1000 douros.

In the year 1821 Ahmed, the Marabout Bey of Constantine, besieged Tuggurt, but his incursion was followed by a more rapid retreat from the fever which struck his army.

The French did not attempt to claim suzerainty until after the wars of Abd-el-Kader, to whose side the Sultan remained steadily attached. In December, 1854, General, then Colonel Desvaux, was sent out from Biskra with a small detachment to reconnoitre as far as Tuggurt, but with orders to abstain from any attack on the town. The Sultan was ill-advised enough to attempt to surround and cut off the little party. Colonel Desvaux put his men in position, and, after a few hours' fighting, completely routed the enemy, but had no intention of pushing his victory; when, during the night, the Sultan fled towards Tunis, where he now resides. Resistance was at an end, and the next morning the French quietly entered and took bloodless possession of the kasbah and the Sultan's treasures, consisting chiefly of silks and an enormous collection of umbrellas, in which he must have been a connoisseur, as he left upwards of a hundred behind him.

The victors installed Ali, son of the Sheik of Temaçin, who had been plundered and imprisoned by Abd-el-Kader, as native deputy, under the high-sounding title of Bey, and have since maintained a garrison consisting of one company of native infantry, commanded by the Hungarian sergeant, who combines the offices of governor, commander-in-chief, and physician, having the sole charge of the hospital.

The language of the Wed R'hir is a Berber dialect, with a considerable admixture of Arabic. The inhabitants of the cities are very dark, and show some admixture of negro blood by their thick lips and flat noses, but the richer classes are as fair as the nomads around them. There is one sept, the Mahadjeriah, consisting of sixty families, who never intermarry with the others, and are very fair, with strongly marked Jewish features. They are said to be Jews who submitted to the Koran several centuries since, and to have settled here long before their brethren. It is somewhat singular that they should, though adopting the religion of the conquerors, have remained a caste apart for many generations.

There are, besides these, a large colony of Jews who occupy a quarter of the city, and enjoy great fame throughout the Sahara as the best jewellers and silversmiths. Several streets are exclusively occupied by their workshops. Their apparatus is simple enough. Few are the tools, scanty the fire, and rude the execution. The bellows consist of a goatskin, with the legs tied tight, and the neck inserted between two stones, on the other side of which is the fire. The hinder part of the skin is open, and two sticks are attached to it, one on each side. These are taken in one hand, opened and closed tight again, and pushed towards the neck. By this means the operator contrives to keep up a tolerable blast.

We visited the synagogue, a wretched hovel at the back of the Jews' quarter. The worshippers all wore the ordinary burnous and Arab head-dress, throwing over it the usual synagogue scarf of white woollen stuff, with a broad blue-striped border. There were very few books, only one imperfect copy of the Law,

and several even of the professed Rabbis were unable to understand the Hebrew they read, although they could pronounce it.

Behind the souk a crumbling ruin, with a tottering tower, one side of which has already fallen and left an inner staircase exposed, tells one of those tales of violence and feuds which make up history. It is the ancient mosque of the Mozabites, who formerly inhabited a third of the city, and, by their enterprise, originated the commercial importance of Tuggurt. About one hundred and fifty years since the other citizens seized the opportunity of a grand religious festival, when all the M'zab were assembled in their mosque, fell upon them and slaughtered them to a man. Since that time no Mozabite has dwelt in Tuggurt, and the mosque of the hated Khramsine has fallen into decay.

The chief mosque of the city, on the other side of the square, is a handsome stone building, with a tall Muezzin tower apart, and consists of eight aisles of seven arches each, covered with encaustic tiles and a few marble slabs, engraved with verses from the Koran. We were allowed to enter it, and observed that, while the five western rows of arches are of the Saracenic type, the three to the east are simple semicircles, and apparently of more ancient construction. The dome is lined with encaustic tiles and mouldings in plaster, of elaborate workmanship. By the side of the pulpit hangs a large German clock, which was pointed out by the Imaum as decidedly the greatest curiosity of the place, surmounted with a gaudily-coloured Rhenish landscape and German inscription, while the figures on the dial are Arabic.

The most peculiar characteristic of all the public and

MOSQUE IN THE WED R'HIR.

To face page 261.

of many of the private buildings are the portions of fancy brickwork, sometimes open and frequently of elegant design, which occur in tiers and in squares. These bricks are burnt, while the rest of the edifice is of sun-dried "mottes."

The view from the summit of the mosque-tower is very fine; commanding a panorama of the country, with nine of the dependent towns, some of them standing and battling with the sandhills, others only to be distinguished by their white domes and cupolas peering through the dark-green foliage of their groves.

The gardens are rich, the sand is more mingled with vegetable mould than in any of the southern oases, and, as at Laghouat and Berryan, a triple crop is raised—dates, fruit-trees, and vegetables, or, more generally, barley and maize. The barley is not watered, as elsewhere, by furrows between the ridges; it is sown in depressed plots of from four to eight yards square: these are surrounded by a bank of earth about six inches high, to retain the liquid, which is let in upon the growing crop till it is submerged, and then gradually percolates through the soil. The salt-water being abundant, there is no stint in the supply, and a luxuriant vegetation rewards the cultivator's toil. But so scarce is fodder for cattle that the stagnant ditches with which the groves abound are carefully raked for the roots of the water-weeds, which, collected in small bundles, are sold at high prices in the souk, and, with carrots, supply the sole forage for horses.

The markets are, however, on the whole, well supplied. Freed from the restrictive "octroi" and prohibitory duties which French bureaucracy has cast as a cordon round all the towns of the Tell, Tuggurt can still provide supplies for the simple wants of

the Saharans from the more open markets of Tunis. Caravans regularly organised pass from Tunis through the Djereed, by Nefta, Gufsa, and Souf. A large proportion of the dry goods of these convoys is left at Tuggurt, while the rest passes on to the M'zab, Waregla, and Touat. Thus we found that all manufactures in leather, fez caps, arms, and perfumes, could be purchased on better terms than within the French limits. But so rigid is the prohibitory system that, on our arrival afterwards at Biskra, our servants were all searched to see whether they wore haïks of foreign manufacture, and our own baggage only escaped by the special favour of the military authorities, who passed it as government stores. Doubtless, ere long, the extension of French material power will exclude the Wed R'hir and Souf from the benefits of free-trade; and as the Algerian authorities have a credulous confidence in the demand for manufactures throughout the Sahara, the proposed expedition to Timbuctoo will endeavour *en passant* to establish a "bureau des Douanes" both at Tuggurt and among the M'zab.

The principal export of the Wed R'hir is the produce of their date-trees, of which the crop from the vast extent of watered land is enormous. From hence all the nomad tribes subject to France obtain their supplies of this favourite food. But other articles are also raised for consumption. Owing to the scarcity of mutton, dogs are regularly fattened and exposed for sale. The M'zab are accused by the more orthodox Mussulmans of indulging in this Chinese delicacy. In their case it is, I believe, a libel, for we never found in their markets any viand more unclean than very tough camel-beef. But at Tuggurt well-fed dogs, skinned, cleaned, and skewered, were prominent on the butcher's stalls, a fact

that does not affect the religious character of the Rouar'a, being only a proof, as Omar remarked, of "the worship of the stomach."

Tuggurt is unquestionably a decaying town, with only the remains of former Arab splendour. Before the subjugation of the South by France it was the great entrepôt whither the unsubdued tribes resorted to buy their barley and other provisions from the Tell, and to give their wool, leather, and camel's hair in exchange. Since their submission they can now go themselves to the Tell, and barter to greater advantage, with their own camels to transport their merchandize. Thus, with no intrinsic advantage beyond its position, and no staple beyond its dates to maintain it, Tuggurt is gradually dwindling into insignificance.

Should the trade with Tunis ever become fairly reorganized, it may rise again as the central depôt of the Sahara; but of this the French are most jealous, and will do all in their power to deflect the stream of commerce to a more northerly channel. As it is now, its chief, 'Ali Bey, with his finery and great kasbah, and his empty coffers to sustain the old magnificence of the Sultan, is an apt emblem of his territory.

The geological features of the Wed R'hir throughout its whole extent of 100 miles will, however, always ensure a large stationary population. There is neither stream nor river; there are but two or three natural springs, yet everywhere there is, beneath the superficial limestone and gravel, a thin stratum of water-permeated sand, on the top of the hard secondary limestone, affording what the natives term Bahr el tah'atani, "the sea below ground." The depth of the stratum varies from 50 to 200 yards. Here, in every village, centuries before the principle of the artesian well was acknow-

ledged in Europe, the Rouar'a have been in the habit of boring simple artesian wells.

Their mode of operation is rude enough. The diameter of the well is about eighteen inches. A man is let down by ropes beneath his armpits, and scoops, with a rude instrument shaped like the fluke of an anchor, the soil beneath his feet; this he passes up in a small basket, and planks the sides of the well as he descends. When he finds the soil becoming black or moist he prepares for a sudden rush of water, fixes the planks, stuffs his ears and nostrils to prevent being suffocated, and at length by a stroke of his implement the jet is liberated, and he is hauled up with all speed along with the bursting liquid. Yet, so sudden and violent is the rush, that, according to the accounts of the natives, the workman is frequently drowned before he can escape.

These wells of course, in process of time, become choked and need frequent renewal. The diameter of the bore, especially towards the surface, is too great to ensure sufficient force for keeping the well clear, and the water often stands at the depth of a few feet below the surface. But the French have already commenced the sinking of iron tubes, under the direction of experienced engineers, with marvellous success; and judging from the wells already bored at Tamerna and at Temaçin, a single spring will supply water enough to convert a barren desert into an oasis capable of sustaining near a thousand souls.

But the very luxuriance produced by the supply of water has its fearful counterbalancing evils. About the middle of April, and again at the commencement of autumn, the African fever, called here the "Oukheum," breaks out in its most malignant form. No stranger dare at these epochs venture south of Biskra;

the very nomads quit the country; all who are not true swarthy Rouar'a, whether Jews or Arabs of the Sahara, Mozabites or natives of Souf, fly precipitately as soon as the ditches begin to assume a reddish tint, and the mosquitoes, called "Ouche Wache," begin to appear. No strangers, except the negro and the half-negro native of Touat, can survive. Even the aborigines do not escape unscathed, but, although with them the "Oukheum" is not generally fatal, the villages swarm with wretched objects, worn down to the last stage of attenuation as if by repeated attacks of ague. In the Sahara, according to the Arab proverb, "He who is not reaped by the sword, sees days without end;" or, according to the Frenchman, "In the Sahara you have health, but must perish of thirst; in the Oasis you have water to repletion, but must rot of fever."

If anything can aggravate the pestilential nature of the locality, it is the filthy ditches and stagnant pools with which, by way of fortification, each city is surrounded. Rank with vegetation, and choked with garbage, even in winter these fetid ponds emit exhalations which sicken the strongest stomach.

Just to the north of the Chott Melr'hir are a line of low hills, named the "Dour," or "turn," called the boundary between the land of sickness and the land of health. Tradition recounts how Sidi Okba, the hero of Biskra, when with his army he advanced to subjugate the Rouar'a, and to take possession of a territory whose riches were reputed inexhaustible, halted at this ridge. Before him lay the vast expanse of the Chott, glittering in the sunlight and magnified by the mirage, the image of a boundless sleeping ocean. Sidi Okba had already had three days' weary march. "Is it for this barren sea that Satan tempts me to abandon my palm-trees?" and

with a sigh he turned his horse; and the hill has borne the name of "Dour"—the turning-point—ever since.

Be this as it may, Roman and Turk alike learnt to respect the boundary of the Dour. Perhaps it will be happy for France, and happy for the Sahara, if a lust of barren conquest will permit the Empire to rest content with the nominal suzerainty she has already attained.

CHAPTER XVIII.

Starved out of Tuggurt — A refractory dragoman — Temaçin — A Wed R'hir city — Busy market-scene — Zouïa — Solitary French officers — A sublimated marabout — Royal and Imperial gifts — A misplaced cart — Warrior saint — A Bedouin dominie — Cheerful soldiers — Omar returns — The priest's steward a valuable guide — Weary desert ride — Solitary well — Breasting the sand-waves — Souf at last — The hospitable khalifat — Magnificent reception — A night of plenty after a day of scarcity — Saharan's opinion of English and French religions — Dryness of Souf — Domed roofs — Female ornaments — Market — Purchases of silk — Gardening under difficulties — Birds and beasts — Shooting at Souf.

WE had proposed to make Tuggurt our head-quarters for some time, but the French column had cleared the land like locusts, and their peaceful ravages left us not a sack of barley for our horses—not a carrot remained in the gardens. Our own store, of course, was exhausted. The Bey perhaps had not the means, certainly not the will, to assist us, so we determined to hoist sacks and move south at once.

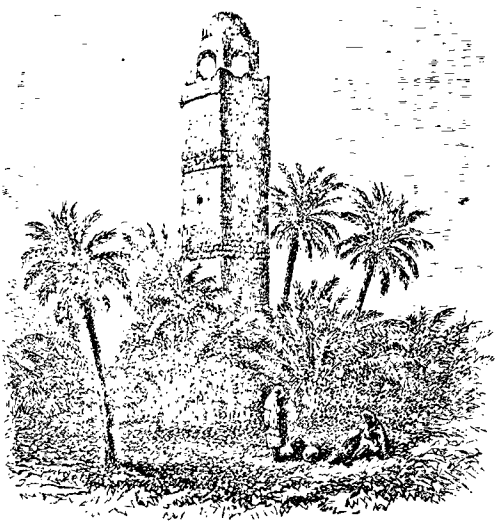
But the attractions of Tuggurt were too great for our dragoman, and for two days he had buried himself in the recesses of the dancing cafés with which the place abounds. Consequently, the farrier of chasseurs had taken the opportunity of fixing three sets of worn-out shoes on our steeds; the saddler had receipted his bill, but forgotten the "réparation de selle;" our water-skins had become suddenly old and cracked; iron tent-pickets were transformed into wood. A few days more and our campaigning properties had altogether vanished. Omar would not move, and as a last resource aped the agonies of toothache. We left our heavy goods in the

storehouse of the friendly Hungarian, who promised to procure camels and forward them and Omar by force of arms.

We rode on, I with only a single stirrup, to the next city of Temaçin, which we reached in two or three hours. One description suffices for all the Wed R'hir cities. First, a salt lake, very shallow, a labyrinth of mud-walls, palm-trees, and enclosures. Then a broad ditch, with filthy stagnant water, which surrounds and defends the city, whose nakedness is only partially hidden by a honeycombed mud-wall. Above and through this wall appears a chaos of edifices of sun-dried brick, ragged and dusty, pitched without design or order, crumbling in decay—much as though the city had descended from a sand-cloud and been sadly battered by the fall. A tall, square mosque-tower alone relieves the monotony, and a village is usually sprinkled over some sand-banks outside the walls.

As we rode through the suburb of Temaçin there was a busy concourse in the open space outside. It was market-day, and all the living beings of the neighbourhood, intelligent or otherwise, were gathered to the rendezvous. Men, women, camels, asses, dogs, goats, and children were grouped promiscuously with wares on the ground. An old negress presided over a variegated vegetable pyramid, with a yellow substratum of melons supporting a mass of alternate layers of cucumbers and pomegranates, crowned with an apex of crimson capsicums. A tame pied ostrich stalked through the crowd, evidently free of the city, and levying an octroi duty from each heap which pleased his eye, but rendering in return many a plume from his scanty garments to the indignant proprietors. An itinerant butcher was vociferating the juicy excellence of two headless gazelle

which hung from his shoulders. A few hungry egrets perched on the walls were wistfully eyeing the offal of slaughtered poultry, with which they meditated to vary their supper of frogs and lizards.



Mosque-tower, Temaçin.

Leaving Temaçin, we wound through the palm-gardens on the other side, and a quarter of an hour brought us to Zouïa, where the marabout resided—a man so sublimated in piety that he would do no man good or evil. He was, for the nonce, absent on a pilgrimage to Mecca, but his brother, another marabout, who—fortunately for us—had not yet attained to so high a degree of negative virtue, presided in his absence. Zouïa is almost entirely composed of mosques and marabouts—clean, orderly, neat, and well-built.

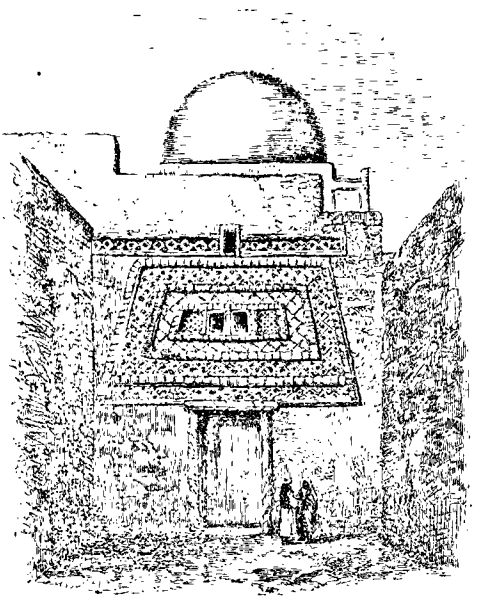
We entered by the western gate, where the French

were sinking an artesian well as a gift to the marabout, who had done much for their power in this country. We found a small encampment inside the walls, and a hearty welcome from the solitary lieutenant of spahis and M. Josse, a young civil engineer in charge of the works, of English extraction and education. We breakfasted with them, and the marabout, having heard of our arrival, sent a huge dish of excellent kouskousou as his contribution to our repast, and paid us a visit soon afterwards. He was a venerable middle-aged man, his dark flat face, spare beard, and scant moustache telling of a mixture of negro blood. He pressed his entertainment upon us, but the Frenchmen, with their wonted hospitality, insisted on their prior claim to the guests. Our hungry horses were comfortably stabled under the arches of the city gate, and a military tent was at once erected for ourselves. Our hosts invited us to coffee, and we were glad to pass the evening by their fire, which, after nightfall, was welcome even here.

After spending a quiet and lonely Sunday, we devoted the next day to the exploration of Zouïa. It is square, with towers at each corner and three others projecting from the walls, far more solid than most Arab constructions. Seven or eight white cupolas rise above the flat roofs—one the marabout's house, another his father's tomb, the new and old mosques, &c. His house is really a handsome edifice after the Moorish fashion, in a clean, open street, with the familiar projecting window over a double-arched gateway. The walls are also pierced with other windows framed in fantastically-carved arabesque woodwork, and gaudily painted. These were all sent as presents by the Bey of Tunis to the marabout, whose reputation for sanctity is spread throughout North Africa. His house is not yet

finished, and a range of lime-kilns behind it tells of the advance of European domestic arts to this distant oasis.

But the wonder of Zouïa, the curiosity most triumphantly pointed out to us, is a two-wheel cart, also a gift of the Bey of Tunis, the first ever seen here and very probably the last, transported piecemeal on the backs of camels for 700 miles, and now housed in all but a glass-case.



Mosque-gate, Zouïa.

Behind the house is the tomb of the father of the chief, also a saint of renown, but who, like those of the middle ages, united the two swords, for over his coffin are suspended the banners of forty-two conquered or subject tribes. The French Emperor, not to be outdone by the Tunisian potentate, has sent the pious chieftain a mag-

nificent clock covered with arabesque-work in ormolu, and a musical box attached, which is now playing in our hearing "Partant pour la Syrie."

The mosque is very like that of Tuggurt, but better preserved, and a new and grander one is in course of erection. Attracted by the noisy hum of juvenile voices, we ventured to enter the old mosque. On a mat against the wall sat cross-legged a dull-eyed Arab, with a long rib of palm-leaf, heavy and thick, in his hand. Round him, in a double circle on the stones, squatted between thirty and forty young Arabs, ranging from six to ten years of age, all with their burnous-hoods drawn over their heads, and chanting at the top of their voices Arabic prayers, of which each held a copy written with white chalk on a polished board about twice the size of an ordinary school-slate. Meantime, the pedagogue distributed even-handed justice by knocking them promiscuously on the head with his ponderous djereed. This, with exercises in writing, seemed to constitute the whole of their education, and how the urchins could learn to read, save by intuition, appeared a mystery.

The plain outside was covered with the black tents of a dependent tribe, the Weled Sa'ad, who claim a vast extent of territory from the line of the Chaamba to the Djebel Sahari. They mustered about 400 tents and probably 3500 souls, and had come in for dates and winter supplies. Unlike the Chaamba, they are a peaceful set, and possess but few horses, though abounding in curs. The women are unveiled, and not cleaner than others of their race. I observed that these Arabs are very unlike the townsmen in features, being fair and showing no cousinship with the negro.

The French soldier certainly has an eye to embellish-

ment. On our return at nightfall we found our tent and a space round it divided from the other by an extempore hedge of fancy shapes. Our hospitable hosts had added a new plank to their little table, and treated us to their best; while, night and day, the dozen French soldiers "du génie," a joyous set, were singing, joking, and working. The boring of the well was worked by relays without intermission, and one might fancy oneself sleeping next-door to a colliery engine. Curiously enough, on giving my card to M. Josse, he exclaimed, "Castle Eden! je dois me rappeler l'endroit," and straightway produced from his desk the card of a gentleman of the same place whom he had met in London, and who had invited him to visit the collieries of the north. Strange coincidence! two cards from the same village in a distant oasis seven days' journey from the last French outpost!

The next morning our incorrigible dragoman appears without baggage or camels, which he declares he cannot procure. We refer him to the marabout, and must encroach for another day on the hospitality of our friends—doubtless to the satisfaction of our horses, who are enjoying rest and liberal rations.

The birds of the marshes attracted me, but in vain I pursued the beautiful white egrets, both great and small, and the purple heron, the fowlingpiece of the spahi lieutenant had within the last month taught them caution. But if nothing was reserved for the scalpel, a few ducks sufficed to conciliate the goodwill of the cook.

At length the camels were procured, and the next morning we proceeded in state to thank the marabout for his hospitable entertainment. He had fed our horses, and added a native dish to each meal at our

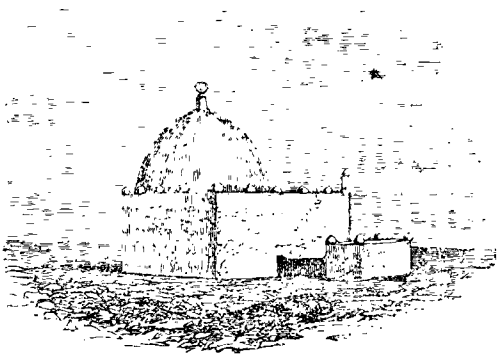
hosts', beside sending a bag of dates for our journey, which quickly disappeared under Omar's careful eye. He received us in his porch, lying on a mastaba, and our interview was very short, chiefly occupied on his part by compliments to our mighty nation, of whom he now first beheld representatives. He had found four camels for us, with four sehaurs and a mounted guide, being an old ragged retainer of his house, bearing a gun twice his own length, but whose presence we were assured would do more for us from the sanctity of his master than any letter of bey or khalifat. We were also accompanied by a negro with a long gun, the "Eliezer of Damascus" of the marabout of Temaçin, on his way to the Tunisian frontier, to welcome his master's return from Mecca.

We ended the day and the year at Tuggurt in purchasing necessaries and looking up our chattels for our ten days' expedition to the oasis of Souf. Alas! my pet lizard, Ed Dabb, which had accompanied us for weeks, but which I had here indiscreetly left behind, I found dead of a broken head administered by some idle Arab or wanton soldier.

The next morning I rose at half-past three, and called Omar, who was now hopelessly demoralized by the seductions of the city. He went out to call the sehaurs, that the camels might be loaded, but disappeared for hours, and we at last discovered him gossiping in a bakehouse. Thus we did not start till seven o'clock, and two precious hours were irretrievably lost. We found that the Khalifat of Tuggurt had secured for us five camels, of which we selected two, and took also another guide, thus starting with eight mounted followers, our own horses, and six camels. We soon left the marshes with their saltpetre-troughs and ruddy

shieldrake feeding among them, and entered upon the desert. Our course was nearly due east.

It was a bleak and miserable New Year's-day. Piercing cold, clouds of sand, a biting north wind, and a sun, glaring but icy, peering through a clear, hard atmosphere. Our very bones were pierced, though I had put on two flannel shirts and a thick burnous. In spite



Marabout near Tuggurt, on the road to Souf.

of my crape spectacles and the brim of my hat over my face, my eyes were in torture, and with sand, wind, and glare, became so inflamed I could scarcely open them. Added to which, my stirrup was irretrievably broken from my saddle, and I had before me a two or three days' ride on my somewhat unmanageable Gazelle. No wonder we agreed that Souf ought to be a place of no common interest, to repay the toil of reaching it.

We soon commenced a toilsome struggle among undulating sand-hills, and about four o'clock descried a strange pile of stones and a club of palm-wood placed upright amongst them. This was Elouibed, the sole well on the route. In a hollow below this guide-post we found a shallow well, about six feet deep, where we watered

our horses and ourselves. Strange episode in this bristling desert, where not the slightest trace of the driest vegetation could be detected! The well was fenced round with stones and pieces of rough brick, or rather sand-cake. Here we were to have made our bivouac had it been a three-days' journey, but, deceived by the fact of the whole distance being only twenty-five leagues, we determined, contrary to the advice of our guides, and to our sorrow, to push on—not, however, before I had had the good fortune to procure three specimens of a lark new to science, and which I never discovered elsewhere (*Galerida arenicola*, Nob.).

We soon encountered a mass of mamelons of fine loose sand, which rose so abrupt, so fast, and frequent, as to resemble the roll and then the chopping seas of an ocean-storm, in which the far-famed "ships of the desert" proved anything but weatherly. The camels, with a growl and a gurgle, first refused, then headed away from it, and at last floundered across mamelon after mamelon. In the gloom of the evening we could scarcely see we were on a sand-hill, before, with a plunge, the horse commenced an almost perpendicular ascent, then sank knee-deep, and rolled down staggering on the other side. The camels managed better, as the driver, holding on by the tail, steered his ungainly quadruped, who, lurching from side to side, slid down, sometimes on his belly, sometimes on his ribs, to the damage only of our baggage, which became lively on his back, and performed sundry unwonted fantasias.

Soon we too dismounted, the struggle being beyond the powers of our exhausted horses. Always to the knee, sometimes to the waist, as we descended, we waded through the drifts, with our bridles on our arms, and our guns slung to the saddles; while two guides on foot

WELL IN THE WED R'HIR.

To face page 300.

kept in advance on the crests to show the bearings to the straggling company behind. Every one kept shouting and looking to the rear, lest the hindermost should be lost.

After two hours' struggle under the guidance of a sickly moon we entered a scrubby plain, and camped in the dark. The tent-pegs would barely hold, our horses were attached to little bushes, three fires were quickly lighted, dry grass (l'alpha or dreen, "*Aristida pungens*") was cut from the sparse tufts for fodder, when I discovered to my horror that but one feed of barley apiece was left for our poor beasts, who had two days' toil before them. Omar had professed to purchase two sacks before leaving Tuggurt, and, pointing to the baggage, had assured me of abundance, but it was in vain here to remonstrate with the rascally dragoman. While P. arranged the tent and I cooked the rice, Omar, instead of picketing the horses, was quietly making himself comfortable in his own tent. I boiled over at last: he flew into a rage, threw down the tent, danced on it, broke the poles, until I dragged him off by the neck; when, seeking in vain for a knife, and imprecating everything on my head, he rushed forth into the darkness, but returned in an hour, the evil spirit having left him, as though nothing had happened. Having dined on rice and a barley-loaf steeped in coffee, we turned in, resolved on an early start for the morrow.

The day was breaking before the dawdling Bedouin had completed the loading. We went on in advance with one guide mounted on a dromedary, bearing our wraps, lest the camels should be sand-stayed another day on the route. At length we reached a higher range of sand-hills, called Sif Sultaun (the Sultan's sword). A cold sun glared through what appeared a

dark clouded sky, but which was in reality a sandstorm, penetrating everything, coating inside as well as outside of my spectacles, clotting the hair and beard, grating the skin through the inmost shirt, and choking mouth, ears, and nostrils. The horizon was dimmed by it on all sides—a bleak, miserable prospect, the colour of the stormy Atlantic.

About ten o'clock we halted for breakfast, under the partial shelter of a sand-wave and a bunch of retza. There was a little vegetation here, for a herd of gazelle approached almost within range, and an animal which must have been a wild ass sniffed at us from a distant hillock. We saw the convoy with the camels appearing in the rear, and mounted again. But the sand-hills soon became looser and higher than before—now like a rolling ocean, broader and more formidable than those of yesterday. It was vain to think of remaining with the camels. Riding was impossible. We scaled and descended with difficulty. Often on rising to windward, plunging breast-high through the wave to what appeared the summit of a round-topped hill, we found the leeward side a perfect precipice of sand, down which man and horse would roll hopelessly engulfed, and we had to wend our cautious way on the crest till we could scramble down with less certain overthrow.

It is this part of the desert which M. Berbrugger, who had preceded us in the disguise of an Arab, told me he found the most toilsome of his many journeys. We struggled forward, scanning from each height the distant prospect, yet still the ocean rolled. The mamelons became mountains. We were scarcely able to lead our hungry and panting horses across those soft masses. It was heavy exercise, laden as we were with game-bags, pistols, shot and powder flasks, and heavy clothing.

Forwards still we must plunge, lest we be caught by nightfall in this wilderness. The sun is fast setting, but the moon rises palely, coquetting with a little shivering star, and we pertinaciously stumble on. At length, from an eminence, we catch a glimpse of palm-trees far ahead. We are told we are in the oasis of Souf. We descend into a comparative plain, and arrive at some scanty palm-groves, and houses fenced with stalks of djereed. We rouse a native to show us the easiest route, who goodnaturedly performs the task by climbing sharp banks of sand, along which we scramble dismounted, now traversing a white plain dotted with luxuriant palm-groves, now breasting rolling hills, till we reach Kouinin, the first village of the group.

Here we were told we were two hours' ride from El Oued, the capital. Dismounting Omar, we sent the marabout's steward on our brown horse to announce our arrival, and spurred after him as best we might. It was nine o'clock as we entered El Oued. Hedged tents with flickering fires, and masses of low buildings, extended far on the left. Presently we saw in the gloom two horsemen approaching. It was the khalifat himself, roused from his bed, who dismounted and greeted us hospitably, remounted, and curvetted in advance, while his attendant, endeavouring to imitate the movements of his lord, turned his saddle and came abruptly to the ground.

A hundred yards more brought us to the gate of the kasbah, a large square loopholed enceinte, divided into two courtyards, and a square redoubt at each corner. We passed under a wide archway, and joyfully dismounted. We then, through another archway, entered a pillared chamber open at either end, resembling the better class of eastern caravanserais. On each side of it was a leewan or raised platform, behind rows of

arches. An iron lamp was burning drowsily in the corner, carpets were spread, then a yellow velvet coverlet, then a Tunisian silk one of gorgeous colours.

A couch was brought and placed against the wall, and we were invited to a dinner eaten backwards. First were brought baskets of dates and walnuts; then, in succession, oranges, a water-melon, and pomegranates were pressed upon us. Coffee and cold water followed. P., who ought to have known better, asked for milk, but the khalifat, in a regretful tone, said it was the only thing not to be had in the oasis. Our host broke up the walnuts for us with his own hands, while his companion, in black burnous and grisly beard, who appeared to hold some office between that of privy councillor and head butler, ably assisted him. A coffee-bearer was meanwhile perpetually dodging about, waiting for his opportunity to go in and win, with pot in one hand and tray of cups in the other. We lighted our pipes, but, exhausted by sixteen hours' incessant toil, I nodded perpetually, while Omar, ensconced at the edge of the carpet, snored incontinently, as if still interpreting in sleep.

A crowd of white burnouses choking every archway were devouring us with their eyes, while the khalifat repeated at intervals to P. his enchantment at the visit of men from the mighty Inglez nation, and his polite hope we should stay a month. Presently some attendants entered with an officer's canteen, another followed, and then the bed to fix between them. We were informed that our travels and all our acts and habits had been duly reported from the M'zab country by the solitary horseman who joined us on the way from Guerrara, and, among other news which had travelled 300 miles, that the elder Inglez always slept on a

canteen-bed. With a marvellous consideration, the khalifat had searched one out for his use, a present from some French general at Biskra. Carpets and silk coverlets were transferred to it, while I was enthroned on an ottoman against the wall.

At length entered a negro with a covered wooden dish a yard high, containing a pile of pancakes fried in honey. This we attacked, the khalifat encouraging us by repeated exclamations of "Mangez, mangez"—this and "Bon soir" comprising the sum total of his attainments in the French language. Urging us to the uttermost, he even broke off morsels with his fingers, and put them into our mouths. When we were fairly *hors de combat*, he gathered his privy councillor, Omar, and some few of his attendants round the dish, which, as many hands make light labour, they speedily despatched. Our letter from the Khalifat of Tuggurt was meanwhile read and re-read. We had hoped it was bed-time, but about eleven o'clock the kouskousou arrived, a ponderous dish, to which we vainly endeavoured to do justice, though the khalifat tore off with his nails any tender morsels, and the negro followed his example, each thrusting the delicacies between our lips. As the meat (a stewed kid) was laid on a soiled blue handkerchief, this mode of serving did not add much to its relish. The remnants shared the fate of the sweetmeats, and pipes and coffee followed again. Then warm water, with veritable scented soap and a soft damask napkin, was passed round, and the water poured on our hands from a silver ewer.

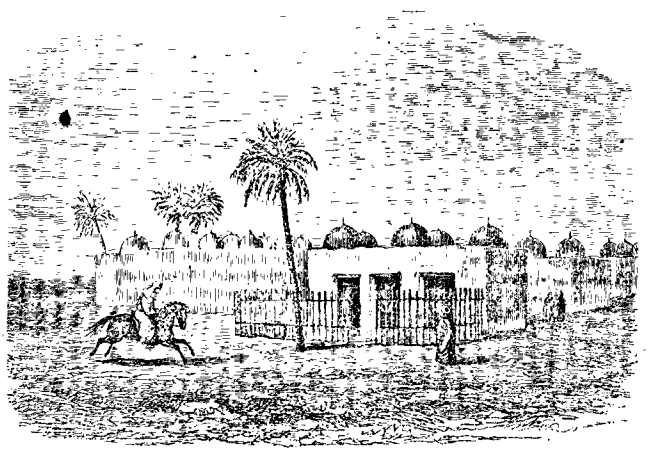
At length we were supposed to be sufficiently fed, and we prepared for sleep, Omar being already rolled in a carpet at the foot of my ottoman. I had scarcely shut my Bible and closed my eyes, when the khalifat himself,

who had shaken hands and wished good-night, crept stealthily into the archway, arrayed in a couple of burnouses, under which he wore an orange jacket with gold embroidery, puce-coloured loose trousers, and red morocco boots. He gently approached, and, scrupulously clean and highly scented, in this gorgeous apparel wrapped himself up for the night on the carpet by P.'s bedside. He had surrendered to us, his uninvited, unexpected guests, his own apartment. Touched as we had been by the refined consideration for others which had prompted the provision of the canteen-bed, this additional proof of hospitality was a lesson to humble us before one of Nature's gentlemen. Outside the arch we could see some twenty sleeping figures huddled promiscuously about the leewan.

During the night our camels had unexpectedly arrived, and the world of Souf had been astir hours before I awoke, fresh and vigorous, but almost blind. P. was already up and at his coffee. I found the khalifat at my bedside, and his negro with coffee and girdle-cake. Our host pointed out water for my morning bath in an archway off the court. Privacy was impossible; as usual, we had to strip and sponge in public, and the attendants assisted even to the buttoning of our waistcoats. Yet Eastern courtesy showed its appreciation of proprieties, and when we knelt down at our beds the gazing crowd either retired or performed their own devotions. The khalifat took up a Bible—"Koraun Inglez, m'leia bezzaf" (very good)—and remarked that he had heard the Inglez had a better religion than the "Roumi," but inquired whether the Franchese had a Koran, as they never read it.

We were unable to discover what the marabout had said in our favour, but it could have been no ordinary

recommendation that called forth these attentions. The young khalifat never lost sight of us. Coffee, honey, hot cakes, and pine-seeds, afforded a hearty breakfast, and we prepared to set out with him to view the town, but before we left he forced us to attack a huge dish of sweet omelet, mince-meat, and cake covered with honey and cayenne.



Entrance to El Oued Souf.

The town—the first unwalled and unfortified place of any size we had seen in Africa—is situated in a level plain, and is one mass of very low buildings, roofed by hundreds of small beehive-shaped domes. There are about 500 houses in El Oued, each about seven feet high, and not one with an upper story, so that from any little mound of rubbish we could see the whole. The streets were open and clean, or rather covered with deep sand instead of dirt. An intense dryness pervaded everything, and wonderfully suited my health and lungs. The days were hot and the nights rather cool. Every building was composed of stone and hard

lime; for mud of course there was none, and timber was an exotic from far; hence the arch was of universal application, and hence the ingenious beehive roofs. The stone is a very hard limestone, white, and often covered with beautiful crystallizations. It is found generally in small and detached lumps a yard or two under the surface; and the crystallization would seem to proceed in the sand, as it does elsewhere from the percolation of salt-water in limestone caverns.

The apartments were all doorless and windowless, opening into a small courtyard, one side of which was against the street with a closed door. Some of the poorer houses in the outskirts were enclosed, not by a wall, but by a neat hedge of djereed (dead palm-leaves). Outside again many tented nomads had established themselves promiscuously. There were very few negro residents, and no apparent admixture of coloured blood; yet the Arab features were not prominent, probably from a preponderance of the Berber element, though Arabic was the vernacular language.

The women for the most part had their faces uncovered and their heads disguised by a coiffure not unlike that of N'goussa. The streets swarmed with brown half-naked children, with bare shaven heads, only a tuft left at the top plaited and pinned, and were loaded with charms and amulets. The girls were weighed down by beads and huge semicircular earrings of silver, with strings of cowries, and sometimes coins, suspended from their necks. Noticing a little girl very heavily weighted, I tempted her to me by a bright ten-sous piece, and, on examining her pendants and jewellery, discovered hanging from one ear, amidst coins and cowries, an English gold seven-shilling piece of George III.

The khalifat, marching in his red boots before us,

waved a handkerchief and repelled the salutations and the pressure of the multitude. He took us to the courtyard of the mosque, and actually invited us, booted as we were, to ascend the tower. We mounted by thirty-five steep steps, and had a bird's-eye view of the oasis, and the ocean-like desert whose billows surround it; but as we had already, in our promenade, climbed several exaggerated dunghills, we saw little we had not seen before.

On inquiring for the Tunisian white silk haïks, which are chiefly fabricated here, we were taken into the souk, a large open space, and made sundry dives into dark dens to examine the goods. But as the crowd, which gathered round, obstructed both light and movement, the khalifat proclaimed that those who had wares to sell should bring them to us in the afternoon.

We returned to find a second breakfast awaiting us; and insisted upon our host partaking with us, a point of etiquette which he at length conceded. The first dish was a large bowl of stewed apricots, highly seasoned with capsicums, and into which we dived for fragments of stewed fowl, raisins, and parched lentils. The chief fished most successfully, plunging in his fingers and bringing up pieces of fowl, which he considerately tore in small morsels for us, handing the bones to his retainers. Kouskousou with a pile of boiled mutton followed, and then of course coffee and pipes.

Over these last we held a sort of Dutch auction. The traders and idlers of the city crowded the court; and all sorts of wares were exhibited and examined amidst the clamour of a Babel. I now knew sufficient Arabic to bargain for myself, which was convenient, as Omar was stupid with feasting, and we referred to the khalifat for his approval of the purchases. P. was less

extravagant: but the negociations ended in my being the lighter by a bag of dollars, while I found myself the possessor of various silk haïks, woollen burnouses, silver anklets, spurs, and pins. A Touareg traveller, who, the khalifat informed us, was a professed bandit, tempted me by several articles from the interior, and especially a huge broadsword of very fine temper.

Our investments pleasantly arranged, I went to the palm-gardens until dark, to look for rare birds, but could not bring them to account from the impossible nature of the ground. For miles and miles to the north and east were to be seen dark green patches rising between the desert billows. These were the tops of palm-trees; each garden being merely a deep sloping pit scooped out of the sand to the depth of from twenty to eighty feet, at the bottom of which rose clumps of from twenty to fifty date-palms. Though there seems not a vestige of soil, except the salt sand, to nourish them, I never saw such luxuriant trees, their tops forming solid domes of deepest green. Underneath their shade are raised, by dint of daily watering, luxuriant crops of tobacco, carrots, a long small turnip, a small trefoil, onions, water-melons, cucumbers, pumpkins, and various cabbage, but no cereals. The only manure used to give consistency to the soil appeared to be that of camels.

In each of these pits is at least one well, generally shallow, about eighteen to thirty feet, making the average water-level about 100 feet below the natural surface of the oasis. The water is drawn in leathern buckets by the hand; or in the deeper wells the operation is partially aided by a long pole swung on a pivot. But this daily watering is not the only struggle of the industrious Souafa. Not a day of the year but

the battle with the desert must be urged, and morning after morning every man toils with his shovel to throw up the sand which the last few hours have rained in upon his plot. Even their precaution of striking in rows of djereeds on the top and sides of all the embankments, in varying lines, to intercept the drift, would, of itself, be ineffectual. A few days' neglect, and the labour of years would be hopelessly buried in the desert waste.

So barren is the sand-ocean round that not a serpent, not a lizard, can find sustenance. The scorpion is the only known poisonous creature, while beyond the gardens the roaming jackal, who doubtless depends chiefly on the offal of Souf for existence, and the little omnivorous fennek (*Megalotis brucii*, Cuv.; *Fenneccus brucii*, Desm.), not larger than a cat, are the only quadrupeds. Of birds there are many in the gardens; but if I caught a glimpse of one, and descended into the pit after him, a flight of a few yards left me behind, with a toilsome ascent in the dazzling glare and another descent to be made with like ill-success. Besides, I was followed by troops of curious boys and men, though I engaged two retainers with long sticks to beat them off. On looking up from a palm-pit the whole encircling ridge was a line of burnoused figures, shouting and scaring every bird by their yells of wonder at the European monster, and thus I had to give up the chase in despair.

The women within doors are not less industrious with their looms than their husbands outside with their spades; and the spindle and distaff hummed in every cottage from dawn till long after sunset. Yet saints are scarce, as two marabouts complete, with the simple mosque and the kasbah, all the public buildings.

I was soon compelled to desist from all attempts to lionize, as ophthalmia rendered the light intolerable, and I was glad to repose in a dark corner for the afternoon, and during the whole of the next day, when we enjoyed certainly a peaceful though a lonely Sunday, keeping my eyes constantly bathed in solution of sulphate of zinc—a specific which almost magically reduced the inflammation. With sulphate of zinc, quinine, and opium cum cretâ, the African traveller's medicine-chest is complete, unless indeed he desires to add a bottle of croton oil for the satisfaction of the many patients who crowd round a western hakeem.

CHAPTER XIX.

The warrior Sheik of Souf — A desert foray — Tunis and France — Commercial politics of the Sahara — Reports of Roman cities in the interior — The prison of Souf — The wild ass of the Sahara — Arrival of a horseman from G'hadames — Capitaine Bonnemain — Trade — Dates — Fabrics — Caravans — Wonderful powers of sight — The Arabs of Souf — Our departure — Taïbeit — A nocturnal intruder — Return to Tuggurt — Evening ride — Camp and villages — Palm-trees by moonlight — A military mass — A warrior's sermon in a mosque — Tact of General Desvaux — Dinner with the Commandant — The fennek or desert fox.

WE had remained three days at El Oued when we received an evening visit from another magnate, the military Sheik of Souf, a fine bronzed-looking warrior, with noble Arab type of feature, and a lustrous black but most good-humoured eye. A scarlet cloth burnous worn under his white one, and thrown back on his left shoulder, marked his rank. Souf combines hereditary with elective dignities. An hereditary khalifat presides as ædile at home; an elective sheik heads the army in war. He apologized for not having come sooner, but had only this afternoon returned from an expedition against the people of Nefta, two days' journey further on, within the Tunisian territory.

Last week the Nefta folk made a foray on the Souafa camels, which have to go one or two days' journey for pasture, and drove off several herds. All the available horsemen of Souf started in pursuit, and have to-day returned from their bootless errand. The marauders had got the camels safe within the walls of Nefta, where the Souafa cavalry could not attack; so after

reconnoitring their foes out of gunshot they have returned, and can only determine to send a complaint to the French general, who will report to the governor of Constantine, who will communicate with the minister at Tunis, who will make a statement to the Minister of the Interior, who will regret the disorganized state of the Djereed, but will promise redress, which promise in two years may be reported at Souf, unless political motives should induce the French to seize a very reasonable opportunity for visiting Nefta.

This sheik was the man who a year ago brought the submission of Souf to the governor-general at Algiers. It was not a matter of compulsion nor of warfare, but, as he himself tells us, a piece of very good policy. Souf, being weak and comparatively rich, with little assistance from Tuggurt, on which it nominally depended, was exposed to constant forays from Touareg and nomad Bedouin alike. Tunis, to which, geographically and from commercial relations, it should belong, the inhabitants know to be too weak and distant to render any effectual protection, and they naturally turned to France, who has thus extended her suzerainty behind Tunis to the south; and we are now sitting within six days' journey of the Gulf of Cabes and the Tripolitan frontier. The present is the first overt act of hostility since the Souafa joined the French, and the sheik hopes that the tricolor may seize the excuse to plant itself still further. It is, he declares, the wish of most of the oases of the Tunisian Djereed to come under the better and more puissant sway of France, whose taxation, though heavy, is not capricious, and who would ensure protection to their trade. The whole of the nomad Arabs, on the contrary, are bitterly hostile to the Gaul, and could

never be subdued without a reckless expenditure of life and treasure in the desert. Certainly the generals who know the Sahara best are decidedly opposed to any forcible extension of the frontier in this direction: for the present, at least, they are ready to admit a "natural frontier" here.

Finding that I was well acquainted with M. Berbrugger, our only tourist predecessor in these parts, the sheik became most cordial. M. Berbrugger had stayed with him in disguise some thirteen years ago, and he had been his escort from Tunis. He kindly and promptly offered me, if I could only obtain for him a letter of authorization from Marshal Randon, to accompany me by land to Tunis, guaranteeing my security, as he was acquainted with all the petty sheiks of the interior. He moreover promised to introduce me to many Roman cities, barely ruined, and full of "hadjera mactouba" (inscribed stones), but as yet untrodden by any European. Such an offer and such a guide are well worth the acceptance of any enterprising antiquarian who is sufficiently master of Arabic to dispense with an interpreter.

This evening we changed our quarters. Our considerate host, without mentioning the subject to us, had our baggage and furniture removed into an inner court, where in a long narrow chamber we could enjoy complete privacy, as none but the retainers of the privileged few might enter this square at all. In the centre was a deep well of delicious water, where his wives were perpetually drawing for the horses and goats. Round it were various chambers, all doorless and windowless, excepting two. One of these two, occupying one side, we perceived to be the harem. Another, with a grated window and locked door, served as the prison. In it were five

prisoners, who in the day-time were permitted, heavily chained, to sun themselves in the court. Four of them were very ill-looking villains, two being murderers and noted brigands, the fifth a mere boy, who amused himself by planting date-sticks in the sand. Saddles and sundry accoutrements hung round the prison, and the captives seemed to take their incarceration lightly enough, for it would not require a Jack Sheppard to teach them how to escape. Under the door was a small hole, where we could see them from time to time peeping and projecting noses like kennelled hounds, and heartily did we laugh to see the khalifat, spite of his dignity, squat on the sand, and parley through the crevice as he stooped to his prisoners.

Our host's good cheer is perilous to the digestion, and his cuisine, unlike that of the M'zab, shows no symptoms of decline. As he now takes all his meals with us, there is no avoiding his importunities. Determined to carry out his genuine politeness, he essays knife and fork, but always ends by transferring the morsel from the fork to his mouth by the intervention of his fingers. But he rapidly progresses in European etiquette. At first the water-jug used to pass from mouth to mouth, but by a conventional tripartite division, one side for P., one for me, while the chief drank from the spout. Now each has a jug to himself. Being startled by loud cries and yells outside, the ever attentive khalifat takes us and shows a party of workmen in a long row conveying stones from hand to hand to the other side of the outer court, yelling in high vigour and spirits a chant which they keep up till nearly midnight.

After dinner we invite him to taste English tea. Though he fills the cup with sugar to the brim, he cannot gulp the beverage, but hands it on to his warlike

brother ruler, who constrains himself to drink it. He tries another cup, which is speedily transferred to a more humble individual outside the carpet. While talking of England I show him a sovereign. The idea of a warlike people being ruled by a woman amuses him exceedingly. "But how can her Majesty lead her armies? and how will soldiers obey one who cannot show them how to fight?" Having hinted that his soul longs for a pair of gloves, which articles he had for the first time in his life seen on our hands, P. presents him with a pair of white kid, which he puts on, gazing on his fingers with unconcealed delight. To this gift are added a pair of silk socks, a cambric handkerchief, and a razor, evidently prized far beyond more costly souvenirs.

The next day we announced our intention of departing on the morrow, lest we should die of repletion. The worthy chief's entertainment had been far beyond our desires, and we had no means of adequately acknowledging it without wounding his high and gentle feelings. He was determined we should not starve, and deluged us between each meal, whenever we happened to come in, with dates, almonds, and honey-cakes.

I went out and secured nine brace of doves as fresh provision for our journey, and paid a final visit to the souk, and especially the Jews' quarter. It was a lovely, calm summer day, a strange contrast to the storm we had lately encountered, and my eyes had now nearly recovered from their attack. We found the children of Israel here, as everywhere else, with their strongly marked type in spite of the disguise of the ordinary Arab dress, working, some at little smithies, but generally as silversmiths, at very coarse jewellery. In several of the shops, amidst burnouses, haïks, and French cotton

kerchiefs, were piles of Manchester calico, marked Lane and Co., and vended at ten sous a yard.

While P. set forth with his sketch-book, I returned to see a very fine ass which had been brought for inspection, and was valued at thirty dollars. Having heard that wild asses were to be occasionally found in the Souafa desert on the route to G'hadames, I had made every inquiry after one, fully believing I should see the koomrah (*Equus hippagrus*, Jard.) mentioned by Dr. Shaw, and known to inhabit some of the sparsely wooded hills of the Fezzan country.

My surprise therefore was great on seeing a veritable "onager" or wild ass, of what exact species I cannot state. He certainly approached very nearly to the "*Asinus onager*" of Asia, and possessed all the marks which distinguish this species from the hamar or ahmar of Soudan. He stood about two hands higher than a common ass, very strong limbed, of a rich slatish ash-colour, with the stripe running from the mane to the tail and the cross stripe on the shoulder, his coat very sleek and short. His nose and limbs were white, and the lower part of the neck and between the shoulders whitish, the mane and tail blackish, with ears broad, and I think perhaps longer than in the common ass; square built and powerful, with a keen lively eye, and teeth ready to seize the first opportunity for a snap at any bystander. He trotted with great speed, and cantered easily. He had been caught very young, and was considered unusually tame for one of his species, but still he was capricious and unmanageable, and required a tremendous bit to hold him.

These asses form valuable beasts of burden from their power of sustaining a three days' march without water; but the adults are very difficult to entrap and

impossible to train. The natives say that they are not gregarious, but consort regularly with the ostrich, and have a keen sight and still keener scent. I have since regretted that I did not make some effort to bring this animal to England, because I feel persuaded that it differs as a variety, if not as a species, from any hitherto seen in our Zoological Gardens.

This afternoon arrived a horseman from G'hadames, the far oasis due south of Tripoli, so well known from Richardson's description. He was the bearer of despatches from Captain Bonnemain, a French officer sent to endeavour to develop communication with the lines of caravans from Soudan to Tripoli. Perhaps our Gallic neighbours have been provoked to jealousy by the exile of an English consul to G'hadames, as the Captain, who was a perfect Arab, was sent in disguise to take soundings. It seems he was recognised, for, though he had no European gun and carefully concealed his revolvers, they had been seen and betrayed him. He was denounced, and had some difficulty in escaping ill treatment. On the whole he has been ill received, and returns nothing effected.

From the manner in which the French talk of the trade of North Africa, it would really seem as though they dreaded a Manchester cotton bale more than an Arab insurrection, and, finding that English calicoes do actually penetrate the desert by way of Tunis and Souf, they propose now to banish some wretched douaniers to Souf to arrest the iniquity. On the other hand, great is the hankering after British goods both by Arab and negro; and we were everywhere earnestly questioned as to the probability of a trade in English fabrics and hardware. To this desire I believe we

owed much of the unvarying hospitality which was afforded us.

We observed that Omar invested every farthing he could obtain in purchasing calico at Souf to smuggle to Algiers and retail at a handsome profit. Would that he had contented himself with this! but he now culminated in insolence, told us we could not dispense with him, which was true enough, and promptly struck out a tariff of the only duties he intended henceforth to perform for us. Happily for my notebook, he did not decline to interpret, and he was the most skilful elicitor of statistics and traditions I ever met with.

We found the other villages to which we rode all facsimiles of El Oued. There are seven towns, all open and scattered over an expanse of sand, extending forty miles by twenty-five. Besides the towns are many hamlets and nomad tents in all directions. The whole population is about 30,000, and they possess 10,000 camels, and numerous goats of a very greyhound-like breed. Besides their dates, which are the largest and the best of the dry quality grown, preserving for a longer period than the more succulent and luscious fruit of Waregla, they grow and export a light tobacco, and a small quantity of cotton of very short fibre, much inferior to the more southern specimens. Many of the inhabitants spend several weeks of the year in the hunting of the ostrich, whose eggs and feathers they export to Tunis.

It is said there are more than 6000 looms in Souf, producing some 70,000 burnouses and haïks annually. These sell at from five to twenty dollars each. Wool is imported from the Tell, and silk from Tunis, which the women weave into haïks. All their fabrics are white, and, unlike the M'zab, they use no dyes. Their pieces

most in demand are of woollen woof and silk warp. The woollen burnouses are of the softest and finest texture, and I saw one which could be drawn through a ring, and was valued at fifty dollars.

But their chief wealth arises from their caravans, and they are the principal carriers of the eastern Sahara. Their government is in some sort republican, as the khalifat and sheik have only an executive authority, the legislative power being in the hands of an elective djemmâa.

The Souafa boast of wondrous powers of endurance and of vision, and profess to be able to walk thirty leagues in a day. Doubtless the difficulty of the country and the scarcity of landmarks must quicken the perceptive faculties in a marvellous degree; and accordingly they pretend to be able to distinguish between a sheep and a goat several leagues off! They will tell by his footmarks to what tribe a traveller belonged; they profess to distinguish the sex of a wild animal by its track, or the species of a date by its stone! Even more incredible are the powers they pretend to, if we may place reliance on Daumas; and when he expressed incredulity, they asked if this were more unreasonable than for a physician to profess to distinguish a disease by the tongue and the pulse.

The Arab tribes around Souf are of distinct race and manners, but live on intimate terms with the settled population, and are always ready to assist them against the Touareg. The women seem perfectly free, and it was only among them that I ever saw the *Nakhar* or dance performed by women of repute. It was at a marriage fête, and resembled in some degree a zickar. But the women were drawn up on one side of a line marked out by a few sticks planted in the sand, and the

men on the other, and neither sex were permitted to transgress the boundary. To the music of tambours and the accompaniment of a dismal chant, the women rose and swayed backwards and forwards slowly and gracefully in exact time, the men applauding at the end of each refrain, and winding up the entertainment at last by a general discharge of all arms in the air as a final feu de joie.

At length we prepared to quit hospitable Souf. The khalifat, liberal to the last, brought in the morning a bag of excellent barley-cake for our convoy; and even Omar, who habitually spoke contemptuously of the Saharans, was constrained involuntarily to exclaim, as he handed him a mutton-bone from our kouskousou dish at breakfast, "Quel charmant garçon!"—Omar's moral sense, long lost, evidently being concealed somewhere in the region of the epigastrum. Our host and his mounted attendants accompanied us beyond the outskirts. On the plain he borrowed my gun, rode on to a distance, turned, and galloping past us discharged both barrels, as a parting salute, over our heads. Thus honouring us, he bade us a cordial farewell, "Salem aleikoum!" "Peace be with you,"—the benediction so rarely bestowed on a Christian. Farewell! our generous host, whose every act and word bespoke you one of nature's noblest gentlemen. Your courtesy was no mere Eastern etiquette. In numberless ways you exhibited that unselfish consideration for the comfort and tastes of others which no education can impart, no policy assume!

Our çamels took the southern route to Temaçin, which, though longer, we were led to expect would be less toilsome than the more direct line. Still there was nothing to vary the weary rolling sand-hills. We camped the first night in the desert, the second at a

solitary well, Wed Merini, where there was neither bush nor tree. Our loitering camel-drivers wished to make a four days' journey, and for the first time in my travels I began to feel thoroughly ennuié. "Mogreb, mogreb, evening we shall arrive," called the guide in front, and at length we saw distant groups of palms.

The sun had set straight before us, but the clear moon guided us to Taïbeit, a miserable village where we must bivouac. Like those of Souf, the houses were covered with multitudes of pigmy domes. The kadi was absent, but the townspeople conducted us to an embryo mosque, where a carpet was spread, and we avoided the trouble of unpacking and pitching tents. We slept soundly with a little fire at our feet; but not so satisfied were the horses, which broke loose, and one of them, having invaded the inner chamber of a peaceful villager, who at first imagined he was surprised by Chaamba, was dragged back by the nostril and handed over to our sehaurs, with a sarcastic remark on the impertinent curiosity of even the horses of Christians.

The next day, after pushing westward for eight hours without a landmark, the guides frankly confessed they were not sure of the direction of Tuggurt. But our anxiety was presently relieved by a glimpse of its towers rising from a line of palms; and we were met in the marsh by the khalifat and two armed attendants, who soon conducted us to our old quarters in the kasbah. The worthy Hungarian sergeant appeared with our letters, which had been sent on from Biskra along with those of the general—our first home news for four months. They were indeed water to a thirsty land; and all the miseries of the sands of Souf were soon forgotten.

What a luxury to awake under a roof! no camels to

pack, no tents to strike, no sand-hills to encounter. We indulged ourselves with a day of idleness: basked in the sun, read and read again the packets from home, and skimmed the newspapers.

But our tour together was drawing to a close; P. must hasten to the coast, for he was bound for the far East, and would fain be in Egypt by March; and I agreed to accompany him to Tunis, thence to penetrate to the interior again.

As though on purpose to facilitate our plans, a young lieutenant of the Bureau Arabe of Biskra, M. St. Martin, called on us in the afternoon. He had just arrived a day in advance of the column, on its return from its hasty promenade, and was to escort a convoy to Biskra. He at once offered us his company and assistance, and promised to arrange everything for us. The journey was to occupy eight days; and we, along with the curé chaplain of the division, were to form a mess together.

The next morning General Desvaux and the column arrived; and Tuggurt rapidly assumed a French appearance. The expedition was also reinforced by the column from Bouçada, which had advanced to the south by a different route. We called on General Desvaux, and were courteously received, and invited to dinner on the morrow by Commandant Seroka, the governor of Biskra.

In the afternoon I took a long solitary ride to the north-west; passing through the camp of the Batna division, which filled the space between Tuggurt and a gentle rise in the sand-drift, on the culminating point of which was a walled village. Pausing on the crest, I had behind me the busy camp of 2000 men and more than 1000 horses, all life and bustle, but perfectly arranged. In front was another small plain,

occupied by the Bouçada division in more loose order, with piles of sacks, fodder, &c., in the centre. Passing the cheerful scene, I halted on the next crest. Before me was a much wider plain with groups of camels in packs and strings, 2000 in number, the water-bearers of the army. I cantered through them till I reached a third large but unwalled village covering a sandy mound.

Here there was a break in the palm forest, and through the opening a glimpse of a silvery lake with its frosted border, and the chilling sand-billows of the Souafa "aregs" in the far horizon over it. I proceeded across a naked plain chequered with a few palms straggling out of the forest to the right; a brisk gallop bringing me to a fourth village, of probably several hundred houses, but unwalled. Women and children rushed screaming into the houses as I rode through the narrow streets. In the souk, where dates and mutton seemed the staple, I was courteously arrested by some of the notables, and pressed to descend and eat.

Thanking them for their hospitality, I pursued my course till the setting sun reminded me it was time to turn. It was a sunset Turner might envy, and of richer hues than Naples ever saw; and as I spurred my fiery horse among the straggling palms, occasionally meeting a Bedouin on the gallop with long firelock and streaming burnous, no scene could have been more exquisitely oriental. The sun had some time set, and a moon at the full mapped the white sand with tall palm-tree shadows, and brought the various villages into clear relief. But, as with everything oriental, all was fairy-like till approached; then camels, palms, villages, Bedouin, all had a coarse and

squalid reality. Strange was the contrast as I emerged on the bright neat camps of the French, with their crackling fires of palm-leaves.

The next day, being Sunday, a grand mass was performed in the centre of the camp, in acknowledgment of the safe return of the expedition from Waregla. The curé called upon us early in the morning and invited us to see "la cérémonie," seeming somewhat hurt at our conscientious preference of a quiet service by ourselves, and our objection to make a show of a service we condemned. We walked into the camp in the afternoon. The chapel for the occasion was simply a partially enclosed space, elegantly fringed and decorated with palm-leaves, and carpets spread in front.

After mass the general summoned all the Arab chiefs; and he had with him a vast following of all the aghas, marabouts, khalifats, and sheiks of the Eastern Sahara. A grand Moslem service was performed, at the conclusion of which General Desvaux, in full uniform, entered the mosque, and, mounting the pulpit, made a long harangue in Arabic. We did not hear the text, but the subject of his lay sermon was to point out the blessings of French rule and equal justice. "Who now fears for his head? Who now dreads a razzia on his camels? Who now quails before a more powerful neighbour? Who now dreads a stronger tribe? All is peace and security. Return thanks, therefore, to God and the Prophet, for the blessings which France has brought you, and which you dreamt not of before; and pray that they may be eternal;" and much more, in the style of Rabshakeh.

Such a sermon, and such an oration, from the seat of the Tolba, was something new in Moslem ears, although it was followed by loud applause, possibly by com-

mand; but as to the facts, probably the general was right.

At all events he understands the Arabs, and has shown true tact in the Waregla business. He is well aware that an insurrection is on the point of breaking out; but he says nothing. French troops have never been seen there before. He collects the three flying columns of Batna, Bouçada, and Laghouat; hastily presses them on by different routes. They arrive, display their strength—no disaffection dare exhibit itself. Instead of making known his suspicions and reasons, he camps outside the city, forbids a single soldier to enter the walls, and gives a grand fête. The new year is celebrated. He has collected an imposing native retinue of all the Arab chiefs and their following clans, gathering as he went. A huge caldron is improvised, and fifty gallons of brandy poured together into the monster punch-bowl for the French soldiery. Horse-races for prizes of silver cups are ridden by the Arab chieftains (our host, Ali Bey, gaining the first cup). There are foot-races and rifle-matches for the others, and a grand Arab fantasia winds up such a day as Waregla had never seen. Thus he showed his effective strength, yet cautiously avoided increasing the disaffection of the citizens, or betraying suspicion; and French power and French gaiety having been together exhibited, and disaffection nipped in the bud or overawed, he peacefully returns with a scientific report on the feasibility of artesian wells; our friends the Chaamba having got wind of him, and retreated far south into the Grand Desert.

We went to dine with Commandant Seroka, and found him and his guests seated on the ground in front of a camp fire, before which a leg of mutton and

a brace of ducks were amicably roasting on the same spit. The chaplain, St. Martin our future escort, and two other officers completed the party. An Arab sheik, a noble-looking man, decorated with the Legion of Honour, entered after dinner, and was received with patronizing politeness; smoked a cigar, drank coffee and a taste of brandy afterwards, in compliment to his hosts: a picture of the falling race, as he crouched in a retired corner of the tent! On being asked if he did not dislike liquors, he replied ambiguously that wine was best for the Frenchman, water for the Arab.

The next morning St. Martin, an energetic, vivacious young Frenchman, with a fine open countenance, appeared in our quarters like a hurricane, having driven Omar, whom he found lounging in the souk, before him to the kasbah, where, in our presence, he finally exploded upon that exemplary domestic, threatening him with military prison and "coups de bâton," "si tu ne marches pas droit." We had been recounting our grievances on the previous evening. Omar, silenced by the storm, subsequently vented his spleen upon me, promising me that, once out of the military territory, and within the reach of civil law courts, he would harass us to death unless he got a handsome douceur.

In the course of the day I was delighted to find in the souk a beautiful little fennek, and, purchasing him for a franc, of a boy, he was transferred to the cage of the defunct dabb, in the hope he might survive and enjoy a better fate. Though full-grown, he was not larger than a kitten, and a perfect miniature of a fox, but with enormous pointed ears, and a very bushy tail two inches longer than his body. He was of a pale isabel colour above, and white below and on the limbs. He had all the habits and movements of a fox, and

barked in a diminutive whisper when any stranger approached. He appeared to be a smaller and differently shaped animal from the Abyssinian *Fennecus brucei* of authors, and I suspect him to be a new species.

We found barley no longer in the quotations of the market; the army had taken all; and after several hours' vain search we obtained at length, through the general's kind intercession, permission to purchase from the commissariat; St. Martin having promised to provide other stores, and to let us have camels at the government price from the corvée. Omar, of course, had done nothing; but we were now under military law, and could retire for the night secure of our convoy on the morrow.

CHAPTER XX.

St. Martin's brigade — The return convoy — Strange medley — Sandstorm — First bivouac — A forced sale — Drunken troopers missing —The Curé of Batna — Tamerna and its artesian well — St. Martin's mode of supplying the commissariat — Tribute-money — A post-courier in the desert — El Baadj — Solitary caravanserai — The Sheik's entertainment — Judge of assize — Cases civil and criminal — Prompt decisions and speedy justice — First glimpse of the Atlas — Oumach — Mons Aurasius — Approach to Biskra — Captain Pigalle's mansion — Return to civilization.

WE were early astir on the morning of January 14, but the delays were many, and it was past eight o'clock before we rode in advance of our camels to overtake the convoy, which had long since started. A motley collection in sooth was St. Martin's brigade—about eighty men in all, and more than double that number of quadrupeds, being all those unfit for the expedition to Souf, which was to start to-day. There were the sick, wayworn, and footsore on asses, in full accoutrements; a spahi mounted guard of twenty men; chasseurs d'Afrique; three drunken troopers; Arab sheiks with trained falcons picturesquely perched on their head or shoulders, eleven in all; greyhounds in clothing; camels laden with miscellanies and curiosities sent home by officers on expedition; a pair of curious Waregla goats, a consignment for the Jardin des Plantes; barking curs; lines of bât mules; led troop-horses with sore backs; spare chargers sent home by officers; and, hovering all round, a cloud of Arab retainers whom I have not enumerated in my estimate.

We passed on the right all the oases of the Wed R'hir, marked by a long green line occasionally broken for a short interval, looming like beads on a string; to the left and before us was only desert, whose even horizon line met the sky. I was introduced to Sidi Mochtar, a chieftain and officer of the Legion of Honour, said to be worth 12,000*l.* sterling per annum, now returning to his home accompanied by three magnificent sakk'r falcons, which had a servant exclusively devoted to them.

And now commenced such a sand-storm as I never elsewhere encountered; not so painful as that on the Souafa desert, for it was not cold, but far fiercer and right in our faces. Our horses were blinded as they struggled on in the wind's eye. Not a trace of the steps even of the animal immediately in front could be perceived. By turning, back to wind, an object at twenty yards distance could be dimly detected, but that was all. Our only guide was the sun, for the sky was cloudless, the sand merely sweeping for a few yards above the surface. Sometimes the gusts almost swept one from the saddle. I put on my spectacles, and a silk kerchief tied tightly as a veil over my face, but still I was blinded, choked, and suffocated. It was more bewildering than a heavy snow-storm; but I kept close by St. Martin's side, at the head of the straggling column.

Once there was a momentary lull, as we came on the banks of a little salt lake. St. Martin, seizing my bridle, for to make me hear was impossible, pointed to my gun, but we were too late, when a cloud of pintail duck rose through the mist. At length we came upon a little oasis, and a half-ruined Arab village, under the lee of whose walls we halted. Soon

came up the canteen mules, and in less than five minutes the orderlies had pitched a little tent, into which we crept, with St. Martin, the curé, and Ayet, the "interprète" of the Bureau, a crimson-clad spahi.

After a hasty repast and an hour's breathing-time we quitted Ghemrha, and started again in like irregular order. Poor P.'s horse was quarrelsome and vicious, and condemned his rider to spend many a solitary hour at a respectful distance, for sins not his own. I pushed on in advance, keeping close to the heels of a white horse conspicuous through the gloom, till after only two hours' hard trot we got under the lee of some palm-groves, and were in the oasis of Sidi Rached, our bivouac for the night.

Seeing an Arab boy with a bundle of roots of a water-weed which is excellent forage, I insisted upon buying it, knowing how scarce food would be, and that all the government horses must be served before ours could claim their share. The lad refused to sell, when my companion, who proved to be St. Martin's Arab orderly, speedily decided the matter by seizing him by the neck, and making him come on, bending under his burden, to an open space beyond Sidi Rached, where we found the caravanserai, and the boy was dismissed with a kick from the spahi and a franc from me, for both of which he seemed equally grateful.

The caravanserai was simply a yard with four walls, and two cells in the opposite corners. I had my horse picketed at his forage before the rest straggled up; the curé was the first, with his black cassock transformed into that of a Franciscan friar, and bemoaning piteously "la misère du voyage," though he had an ambling mule with a bât saddle on which he could sit sideways, and fared the best of the party. At length arrived P., and

STREAM AND PALM GROVE, WED R'HIR.

To face page 333

after him the rest of the cavalry. Our tent was soon pitched, thanks to the number of willing hands; and fortunate we now found ourselves in having secured the forage, for the camels were far behind. At eight o'clock St. Martin found six men still missing; three who were known to have drunk too much as a parting glass, and three others who must have lost their way. The ranks of the cavalry were also deficient by two donkeys. For the drunken men the risk was great, since, if a man lie down in such a storm, he must soon be suffocated.

The priest, who seemed a guileless man, and little up in controversy, kept us long after dinner in friendly debate on the English Church, of whose doctrines he was profoundly ignorant, though he had read a French pamphlet containing a full account of Archdeacon Denison's case, and believed he represented the views of a majority of the clergy!

We made a late start the next morning, as we had but eight leagues before us. The stragglers, except one, had come up, having been wandering all night, but, being French soldiers, had sufficient head to keep a northerly course and to observe the stars for guidance. The drunkards, very sober now, were set upon camels to ease their wearied limbs.

The route was less uninteresting than that of the preceding day, and we halted in the afternoon at Tamerna to visit the artesian well, the first sunk by the French in the Sahara. Under a little summer-house of palm-stems, in the midst of a date-grove, an iron pipe ten inches in diameter throws a low jet of 800 gallons of clear sweet water per minute. This is all carefully conveyed by little canals throughout the oasis, which is already beginning to extend its limits, as young palms

are being planted and carrots and barley sown all round its borders. Here our camels and mules replenished all the skins, as we should meet with no good water for the next two days. The barley, on the 15th of January, was already showing the sheath of the ear. In March, after the crop had been reaped, maize would be dibbled in, and then a third crop, carrots or turnips, would be raised in autumn.

We watched the operations of an Arab laundry by a duck-pond. A boy stood in the pond opposite a little hollow scooped out at its edge. In this, on the bare ground, was placed a bundle of clothes, upon which stood a little barefooted girl; and while the boy kept a perpetual splash upon the heap, she as constantly seconded his efforts by a lively scuffle-dance upon the linen until she was breathless. A breathing-time, a merry laugh, and the operation recommenced, till the linen was thoroughly soaked and had imbibed a liberal infusion of mud as well as water.

Beyond Tamerna many layers of natron cropped through the sand, and were employed in the erection of sheiks' tombs and marabouts. In the afternoon, having several hours to spare, we left the convoy and made a détour with the falconers, and, after an animated chase, reached Zouïa (not the southern holy city), our appointed halting-place.

We found our host waiting dinner for us, and, as we were sitting down, a brisk little spahi dragged in an Arab with a bloody nose. This proved to be the deputy of the absent kadi of the village, who had had ten days' notice to provide dreen or coarse grass as fodder for the convoy, but had come and declared there was none to be found, and in endeavouring to resist the spahi's attempt to drag him before the officer had

fared but second best, as his face testified. After listening to his solemn declarations that there was not a morsel for a horse to eat within a day's march, that all the tribe were out with their flocks, and that he had not a man to carry fodder, St. Martin quietly took out his watch, and said that if, within an hour from that time, there was not forage supplied for all the horses of the convoy, the kadi should be bastinadoed and fined 100 dollars, and his tribe fined another hundred. The headman went away wringing his hands and howling as if in despair, but in less than half an hour upwards of thirty men appeared, carrying more than sufficient forage for all our cattle, and St. Martin moralized on English prejudices and the true way of dealing with Orientals.

The next day we traversed desert again, to the wretched village of Sidi Khrelil, where were a palm-grove and some wells strongly impregnated with saltpetre. The ground was so saturated with it that it would yield no undercrop, even cruciform plants being unable to thrive. The kadi and notables presented themselves before St. Martin with the tribute of the year, looking mournfully at the pile of dollars they placed on his extemporized table, and yearning after their cherished and disembowelled treasure, for all the money bore evident signs of having been buried in the earth, and only recently exhumed. The tax is sixty-five centimes per palm-tree, about one-half of what they used to pay to the Sultan of Tuggurt, and the crop of each tree is considered to average thirteen francs per year.

Our "viande" had come to an end, but St. Martin extemporized what he termed a solid salad, an admirable campaigning dish. We sliced a large bowl of

cold boiled potatoes, a dozen hard-boiled eggs, three raw onions, and a stick of garlic, and then, prodigal of oil and sparing of vinegar, mixed it well with pepper and salt. The curé alone could not enjoy the feast, but then he was a man of mortification. The inhabitants afterwards brought baskets of dates, which were distributed among the soldiers and supplied an unexpected dessert. A number of fresh ostrich-eggs were exhibited for sale, and all those who had any space in their canteens, which I had not, invested in them at three francs apiece.

But we had a long march to-day, and must press on. St. Martin beguiled the tedium of the ride by speculating on his fortunes, if, as had been reported, he should be appointed to Tuggurt, where the general talked of stationing a commissioned officer. He had been dreaming of a wife and a piano at Biskra; but if he should be exiled to Tuggurt, no European lady would accompany him, and he thought of marrying two Arab ladies, in the hope that their domestic quarrels might make music enough to keep him awake.

As we were slowly riding on, a mounted Bedouin passed and saluted. A few moments afterwards St. Martin bethought himself to desire his orderly to ride after him and inquire his errand. The spahi soon returned with a paper packet. It was actually a courier sent from Biskra with despatches for St. Martin, whom he was to meet on the way; but, with true Arab nonchalance and carelessness, he had passed him, and now excused himself by saying he was not thinking at the moment. Out of the packet St. Martin produced letters from England both for P. and myself. Unlooked for, indeed, and welcome missives in the midst of the desert. We halted for the night in an open caravanserai at El

Marier, the last oasis in the Wed R'hir. Henceforward we were to have nothing but sand all the way to Biskra.

The next day we encountered another sand-storm, and made ten leagues without incident, till, passing the ridge of *Dour*, or "Turn-again," the limits of the Rouar'a, we reached El Baadj, our halting-place for the night, a large square caravanserai-yard and Arab post, lately built by the French, in the midst of what appeared a wretched desert, but which, treeless and boundless as it was, was in reality the centre of a great nomad population, from the solitary well in the yard, which, like that of Beersheba, has been striven for by many a tribe.

The enclosure, built with stones carried from far, and flanked by loopholed towers, has two good windowless apartments in one corner. Piles of "dreen" for the baggage animals awaited our arrival. We were met outside by a troop of Arab horsemen, six of them sheiks of the desert, with embroidered crimson mantles flashing under their white burnouses. The party was received by the principal kaïd with great honour, and conducted to one of the rooms strewn with Turkey carpets and damask cushions worked in gold and silk embroidery. "We are come to the borders of civilization at last!" exclaimed St. Martin.

We sat cross-legged on the carpets and leaned on the cushions, while dates and camels' milk were served, the latter in a silver goblet of curious and ancient workmanship. Coffee followed in Sèvres cups with pewter spoons. A plump-faced little scion of the kaïd's, about five years old, was placed on the tapis, dressed in gold embroidered crimson jacket, loose blue breeches, long red morocco boots, and yellow slippers. A fine white

burnous and an ornamented crimson one over it, with red fez and blue tassel, completed the habiliments of this young specimen of Bedouin aristocracy, who carried his honours with great gravity, and carefully gripped the ten-sous piece the curé had given him.

The curé borrowed P.'s gun, and proposed to accompany us "à la chasse" till dinner. He had a lady's veil tied tightly round his broad-brimmed hat; and when asked from what fair penitent he had received it, confessed it was a gift to the Virgin at Batna to keep the dust from her face, but, the image having had a glass-case provided for it, the padre considered himself fairly entitled to her cast-off covering. St. Martin, gravely suggesting that the possession of such a piece of female attire might give rise to scandal, mischievously succeeded in obtaining possession of the gift.

On our return, after nightfall, a long train of attendants brought in dinner on metal trays, which were placed in the centre of the carpet. The falconer sheik, Sidi Mochtar, joined us, and sat next our host, who, according to Arab etiquette, did not partake. St. Martin did the honours of the feast, while Ayet, the interpreter, occupied a dubious position on the carpet. The dishes were too numerous to mention: vermicelli-soup, in compliment to the Frenchmen, then delicate thin cakes of bread soused in liquid butter; balls of mincemeat, mutton and raisins stewed in honey, fried potatoes, kidney-beans, sticks of kabobs, roast fowl, dates, and walnuts—all before kouskousou, the "pièce de résistance," made its appearance; till St. Martin cried out he would not breakfast with the kaïd to-morrow if he gave us more than fried potatoes and kouskousou. When each dish had performed its round, it was handed to the servants, who fed on the spot, and

passed the remnants to the Bedouin who crowded the doorway. Water went round in a silver bowl, but Sidi Mochtar promised the curé a special keg of Bordeaux when he came to see him alone.

Dinner over, coffee and the moonfaced-boy were placed in the centre, and, both having been duly discussed, the kaïd, over his pipe, pulled out a note-book with metallic pencil, full of Arabic memoranda, and began to consult his superior officer, St. Martin, on sundry knotty points of law which had lately come before him.

First. A young Arab woman had been married, contrary to French law, by the taleb, or sub-kadi, instead of the kadi; and she being an orphan, the law required that 100 francs should be deposited with the Bureau Arabe for her use in case of divorce or widowhood. Her dowry had been appropriated by her uncle and brother, and in six weeks after marriage she was left a widow. Thus two illegalities had been committed. St. Martin, having taken notes, was about to decide, when the screams of a fowl were heard outside. "Who is meddling with the poultry?" cries the judge. "Omar," says a voice in the entry. "Tell him," roars the judge, "that, if the fowls do not all arrive safe and sound at Biskra, he shall have fourteen days' imprisonment." Then he turns and gives sentence. The relatives are to pay 100 francs and undergo a day's imprisonment each, and the taleb the same, the whole amount of the fines to go to the widow.

Secondly. Three Arabs had entered a tent in which was a woman by herself. She screamed. The Arabs were escaping, when one of the neighbours sallied forth from his tent and fired a pistol, which wounded one of the intruders. Sentence: for the tent-breakers, fifteen

days' imprisonment; for the other, forfeiture of the pistol, as he had no permission to carry arms.

Third case. A petty sheik and three Arab horsemen had been left in charge of a post during the march of the column. One of the cavaliers bribed his chief with twenty-five francs to be let off duty, which consequently fell heavier on the other two. Sentence: fifteen days' imprisonment and fifty francs fine for the sheik, and twenty-five francs fine for the briber.

Fourth case. A party of nomads had driven off their camels and flocks into the Tunisian territory to avoid the payment of the yearly taxes. Case referred.

In this fashion the calendar of El Baadj was rapidly proceeded with, and the gaol delivery completed, without the intervention of counsel or attorney, and we retired to rest promiscuously on the carpet.

After an Arab breakfast the next morning, as per order, we started some hours behind the convoy, which had been intrusted to the sergeants, and after ten or twelve miles' ride got our first view of the Dj. Chechar, one of the southern spurs of the Atlas, crowned with snowy peaks. Below these a belt of clouds had gathered, and presently a pattering shower, with clear blue sky behind it, reminded us we were leaving the cloudless desert. By a pile of stones raised as a landmark on a sandy mound we found at four o'clock a tent already pitched, and the evening, after sundown, was as clear as though no tear-drops had ever bedewed the sky.

Two camel-drivers and a soldier of the Légion d'Afrique (condemned corps) had been detected stealing two ewes and a new-dropped lamb, as the convoy passed, on the plea they imagined they were waifs. The soldier was reserved for imprisonment at Biskra, but more speedy justice was administered on the sehaurs. Besides fifteen

days' imprisonment in futuro, twenty "coups de bâton" were ordered on the spot, and promptly inflicted, the culprits being laid down among our cooking-utensils, and Ayet holding the head and an Arab groom the feet of each in turn.

St. Martin, over the watch-fire, recounted his brief history: how, the son of a general of the wars of the Revolution, he graduated in law at the University, but, at the breaking out of the Revolution of 1848, foreseeing that a military career was now open to the youth of France, had enlisted as a private, risen rapidly, won his decoration, and was now expecting his company by each gazette.

The next day, as we rode along the unvarying plain, the Dj. Chechar became more distinct, a crowd of red peaks subsiding in front into low white hills, and, as they swept to the eastward, swelling into a rugged mountain-chain with bright lights and deep shadows. Straight before us at their foot a line of deep green marked the oasis of Oumach. For the first time for months we forded a stream, the shallow and saline Wed Djidi, scrambled up its steep banks, and what a startling change! No longer sand, but rich, though hard, alluvial soil, in many parts of which barley was cultivated without artificial watering. I can only compare the sensation on here treading stiff ground to that of the first landing on terra firma after a long sea-voyage. The crops, however, are here most precarious from drought, and are called by the Arabs "*Djelf*," or fields left to the *grace* of God.

As we entered the palm-gardens of Oumach, poor though abundantly watered, we were met by the kadi and conducted into the city, defended by a broad ditch, and abounding in low-set towers and tumble-down mud

houses, fantastically ornamented with cart-wheel windows, triangular lightholes, and loopholes of strange device—in fact, freemasonry run mad. After passing through the city school, an open yard where the usual crowd of urchins were chanting prayers from whited boards, we dismounted at the kasbah, an irregular pile of crumbling towers, and, descending by a low archway into a sort of subterranean den, found ourselves in a square court open at the top, or rather in a roofless tower. All around massive palm-trunks formed not unsightly pillars, with the usual arcades behind them. Goats, sheep, luggage, saddles, and camel-furniture occupied the centre, which St. Martin appropriately termed the Messageries Impériales. But not only were the kadi's sheepfolds thus brought within his walls: we found that a bolted door behind us was the prison, and a Hadj, locked up for vagrancy, yelled forth his prayers for our benefit during dinner so obstreperously, that St. Martin ordered him to be silenced. He retorted by rebuking his ingratitude, since he was only praying for our conversion.

The next morning we were to start before daybreak, as St. Martin wished to review his awkward squad and to arrive at Biskra in time for déjeûner. Omar, under his tutelage, had our share of goods actually loaded in time, notwithstanding his fatigues from an eighteen-miles' tramp on foot yesterday, the result of the commander having ordered off the camels before the loiterer was ready.

We crossed a few belts of moving sand-hills making their last struggle against the Tell. As the morning broke, the mountains were very fine. A rocky range finely chequered with bright red and dark brown partially masked the Dj. Chechar. Behind these again, a

dark and nearly parallel range towered sombre and grand in the distance. It was the richest portion of Numidia of old, the Mons Aurasius of the Romans, the Djebel Auress and Beni fe'rah of the Arabs. Flashing in the morning sun, a diamond set in mountains, at the distance of thirty miles, were seen the precipitous white cliffs which form the salt-rocks of El Outaia, and a rosy blush was cast on the snow-line far above.

As we neared the dark forest of the oasis of Biskra, land was cleared for barley, little asses laden with brushwood were trudging to town, sheep's skulls scattered here and there in the path testified no lack of mutton. Many Arabs passed us—the women unveiled, dusky, dirty, miserably clad; but a tawdry handkerchief, and a few silver ornaments in hair and ears, hinted that even ill-usage and hard work had not altogether extinguished vanity.

The oasis, unlike any others, was not a mere mass of crowded palms, with a village in the centre or on the edge, but an extensive fertile tract, with groves, gardens, open fields, villages, interspersed in all directions. The barley was already (Jan. 21st) in the ear. We were on a macadamized road! watercourses on either side of it, and a young but promising avenue in genuine French taste. Gnarled old olive-trees mingled with the palms, behind which peeped the ruins of old Biskra, with its ancient Turkish fort, now, with the exception of a good Turkish bath, wholly demolished by the French. It was here, in 1846, that the French garrison was massacred to a man by the natives.

Turning to the left, at the end of a long clean avenue we saw the low stone-built edifices of the new French town. An old Algerian friend, who possessed the best private house in Biskra, had most kindly offered us the

use of his mansion in his absence, should we ever find ourselves in the oasis, and the commandant, whom we met at Tuggurt, had accordingly most considerately sent on notice of our expected arrival. We were met by an Arab servant, and, quitting the convoy, surrendered ourselves to his guidance. The first building in the village-like and open town was the school founded by the conquerors to instruct the natives in French literature, and which all aspirants for employment must attend. It was a single-storied and colonnaded building. Opposite were the kadi's house and public stables, of a similar character, spacious and handsome. A little further on, and at a window sat a lady with flaxen curls. It was the bower of the solitary fair lady of Biskra, the Prussian wife of an English officer attached to the Bureau.

We rode down another street, when a door was opened, and a civil French servant greeted us as expected guests. We entered, and a door opening upon a neat parterre disclosed a small salle à manger, with table spread, clean white linen, long-necked bottles, French rolls, and a bright wood-fire on the hearth, with the other, to us novel and unwonted, adjuncts of civilization. Off this was a richly-furnished bed-room, and a library beyond it. We were installed in the country-house of Captain Pigalle, who was absent with his regiment. As we surveyed our petrified, grizzled, travel-stained faces in the mirror, we felt ourselves the only pieces of inappropriate furniture in this exquisite little ménage. We did justice to the viands and Bordeaux, took a bath, unpacked; and the evening found the desert-wanderers seated in white gloves and ties at the soirée of Madame R——.

CHAPTER XXI.

Biskra — Parisian tourists — Struggle of the desert and the Tell — Botanical garden — Farms and gardens — Omar's faithlessness — Formal trial and judicial separation — Our ex-warrior groom — Novel application of the trial by ordeal — Ingenuity of the detectives — Hot spring — Peculiar fish — Our last Sunday at Biskra, and common service — Departure — Col de Sfa — El Outaia — Salt-mountain — Natural warm baths — Benighted on the plain — The last of the oases — Gorge of El Kantara — Roman bridge — Grandeur of the pass — Farewell to the Sahara.

INSTALLED in our luxurious quarters at Captain Pigalle's, even P., impatient as he was to reach the East, was tempted to rest and civilize for a week.

Biskra, being that point of the Sahara most easily attained by tourists, is generally assumed as a fair specimen of an oasis. It is actually visited by a weekly diligence from Constantine, in which dusty Parisians sit half-choked, or look out occasionally, in the hope or fear of seeing a lion. Arrived at Biskra, they spend two mornings in the Café Billard, lately erected, and saunter out in the cool of the evening to smoke a cigar under a palm-tree, and to stare at the grimy Arabs under their tents. Thus "le tour du Désert" having been made, the bourgeois returns to pour forth sententious nothings about the progress of France and civilization in Africa.

But though the whole country from Biskra to El Kantara is geographically part of the Sahara, it is influenced, as might have been expected, by the vicinity of the Atlas, and partakes much of the characters of a debatable land. Tillage and cereals are struggling, and not altogether without success, to hold their own

against flocks and palm-trees. Its situation, combining the advantages of a perennial stream from the Dj. Auress with the temperature of the tropics, furnishes great facilities for the botanical and agricultural experiments carried on at the Government Pépinière. This is yet in its infancy, but has produced fine samples of sugar, both from the West Indian cane and the Chinese "sorgho," of cotton and indigo, while various Senegal plants are cultivated with success. The best varieties of the date-palm are also collected, in order to distribute the seeds to native planters.

I found M. Jamin, the director, an intelligent and enthusiastic botanist, who has made a magnificent collection of upwards of twenty thousand dried plants. He mentioned, what my own search corroborated, that in the whole desert but one orchideous plant, one single fern (the maidenhair), and only two bulbs, a very small allium and a small crocus, are found. In looking over my collection, which had suffered sadly from mould and too hasty packing, he found at least two new species of dwarf shrubs, which I gave him to send to M. Cosson for description in his projected work on the Flora of the Sahara.

There is an interesting collection of cottons, and of wheats upwards of seventy varieties, including some twenty from Egypt, Abyssinia, and Central Africa, side by side with all the principal English varieties; thus exemplifying how very little wheat is affected by climate, and how, like man, it can adapt itself to extremes of temperature. It is sown in October, and reaped in February or March, and it is only the limited supply of water which prevents the extension of the arable land.

The Wed Biskra is generally a scanty stream in a

wide gravelly bed, but a quarter of a mile wide in time of floods. Instead of a dense mass of palms, with fruit-trees and cultivation under their shade, we have here lovely open fields, stately avenues, dark dells, and picturesque clumps. The fields are generally small, without hedges, but surrounded sometimes by a single, sometimes by a double row of palms, the younger trees often completely concealing the view of the next field or plantation. Among the palms meander the little watercourses so necessary for their nourishment, and which are all brought from the head of the town of New Biskra, from a spot called "the Partition of the Waters."

Ever and anon the snipe or the green sandpiper, and sometimes the wild duck, rise from behind a palm as I ramble, while the turtle-dove (*Turtur Ægyptiacus*), more wary, and taught by experience, steals from the further side of the tree, nor stays, like her sister in the M'zab, to gaze down on the intruder. Though game-laws exist, the law of trespass appears to be unknown, and the stranger may wander at will through the little secluded plots of barley, capsicum, maize, or lentils, and constantly, as he emerges from a thicket, he stumbles upon an Arab family seated at their tent-doors. These are the proprietors of the little patch, probably nomads, who come here at stated seasons to sow and to reap, and then retire to the deserts with their flocks for the rest of the year. After a "sabalkeer" from the owners, and a less courteous salute from their dogs, you pass on, and the next opening through the dark glade, as you thread your way on the little embankment which retains the watercourse, presents you with a sight of a more permanent Arab ménage, the earth-built house of the city Arab, whose profession is that of a market-

gardener, but whose occupation is rather that of watching than of cultivating his plants.

We had only been two or three days in Biskra, when, on returning home to dinner, Omar, who had been lounging out of call ever since our arrival, presented himself to tell us the horses had had their corn, forage, and clothing for the night. Some suspicion having crossed our minds, at P.'s suggestion (who was laid up with illness himself) I sallied forth at ten o'clock, and found the poor creatures shivering in an open shed, unclad, and having had neither corn nor forage all day. Omar was not to be found, but, guided by some Arabs, I discovered his quarters, and ascertained he had appropriated all the horse-cloths to his own bed, and had gone to a revel. The next morning he came smiling and cringing as usual, and, in reply to all my accusations, declared, by the tomb of the Prophet, that he had put the clothing on our horses. This filled up the measure of his ill deeds, and I requested P. to accompany us at once to the Bureau Arabe.

The Bureau was a small arcaded building, with various offices within. Under the arches crouched a host of Arabs, from the red-mantled, red-booted spahi, to the humble wearer of a solitary burnous. We entered the office, a small apartment, furnished with a single desk and stool, from which St. Martin was administering prompt and impartial justice. The room was crowded with litigants; amongst whom an old woman, seated against the wall, was most vociferous, while Ayet of course stood as clerk to the court, and registered the proceedings. Chaouches, *i.e.* cavasses, distinguished by a piece of red braid twisted into their camel's-hair head-dress, to mark their office as policemen, were mingled here and there in attend-

ance upon culprits. With rapid delivery the young officer gave forth "vingt coups de bâton et quinze jours de prison," as his panacea for all the ills of Arab humanity. The case in hand concluded, I opened our business briefly and formally. Omar then made an oration in reply, extolling his services; when the judge, after a voluble and rapid résumé of his previous offences, declared his service at an end, and added that he could claim no expenses for his passage back to Algiers. I recapitulated the articles lost or missing, when an unexpected witness started up to prove that Omar had sold, not lost, our sack of barley. St. Martin then, on our declining to press the case, endorsed his passport with a note of his dismissal and its cause, which he must carry, like his conscience, in his pocket.

Thus beleaguered, our noble Arab bowed to destiny, and, sarcastically thanking us, fumbled in his girdle, and handed forth to me his red-sheathed cook's knife—his badge of office—assuring us he would beware of Englishmen for the future. Poor fellow! he was a sad rogue, but had been very useful to us when away from the temptations of towns, of which he was the spell-bound slave. In his stead we engaged an ex-militaire of the "Turcos," with his English Crimean medal dangling from his burnous, a quiet, anxious-looking Arab, but who could speak no French; a matter of small consequence to us now, when arrived within the "limite militaire," as he understood horses, and knew all the routes in the country.

While our horses enjoyed a week of rest and clover, we necessarily confined ourselves to such expeditions as we could make on foot, and occasionally studied the humours of the place by mingling with the crowd round St. Martin's judgment-seat. One night the office

of the Pépinière had been broken into and robbed. Suspicion at once fell upon a party of Arabs who had been employed about the place on the preceding day, there being already evidence of the nationality of the culprits. They were accordingly assembled; and the mode of detection was at least original. They were ordered to draw straws from a bundle, having first been told that one of the straws was two inches longer than the others, and that the Prophet would undoubtedly discover the robber by his drawing the longest straw. All the straws had been carefully cut to the same length by the gendarmes, but on their being re-collected it was found that three conscience-stricken Arabs had cut pieces off theirs. These were immediately seized, brought before the Bureau, and committed for trial. As it happened, sufficient evidence was afterwards adduced to cause the conviction of one of them.

One of our expeditions was to visit a hot spring under the base of the spur which feeds the Wed Biskra. The spring bubbles up in a natural basin about twelve yards in diameter, of the temperature of 115° Fahr., and is strongly sulphureous and salt. The stream which it feeds leaves a fetid bluish deposit in a small marsh which absorbs it. This marsh is full of snipe and sand-pipers, while a little fish of the same species (*Cyprinodon dispar*), which is found in the hot springs of Ammon, near Egypt, about an inch and a half long, swarms in every pool, but more especially near the mouth of the basin, where the water has a temperature of 90° Fahr. The whole surface of the soil round is covered with broken fragments and masses of iron-ore.

Further on we came to a deep salt pool, in a little circular basin, exactly like an extinct crater. This pool never varies in its water-level, even in the hottest

summer. It has never been sounded in the centre, but close to the edge we let down sixty yards of line without finding bottom. It is fringed with tall reeds, and quantities of a species of "melania," in a semi-fossil state. As the geology seems to be entirely alluvial or tertiary, these appearances were somewhat perplexing.

We had spent a week at Biskra before we thought of moving, but now no time was to be lost; I accordingly purchased from P. his faithful horse Pipeclay, and determined to leave my others under St. Martin's kind guardianship, until they could be sent at the end of March to meet me on the Tunisian frontier, whither our new Arab, Ben Mohammed, was to conduct them, after escorting us to the coast, and riding back Pipeclay, who had also earned a couple of months' grass and holiday.

We had one more Sunday at Biskra; and having found three to join our little party at service, it was wished that an opportunity should be afforded for the Holy Communion, of which none there had had an opportunity of partaking for more than two years. Though Lutherans, they were glad to unite in the English service. But now arose a difficulty. English Bibles and Prayer-books, and German Bibles and Services, there were of course, but French was the only common language of the party, and into it we had to translate the service. As a last resource I called on the curé, and succeeded in borrowing from him a French Bible, in eight 8vo. volumes, with copious notes by a Jesuit father. With this assistance we carried on the service intelligibly, and to the profit and comfort, I trust, of us all.

The next morning we bid an early adieu to our ex-

cellent friends at Biskra; leaving behind us a debt of gratitude beyond our power to repay. A well-engineered road leads up the Col de Sfa; on the summit of which we turned to bid farewell to the Great Desert. There it lay beneath us, and far far beyond, stretching into distance in all its monotonous barrenness—a bleak, unrelieved expanse. Yet many a memory of strange adventure and pleasant incident remained bound to those yellow sands, those rocks and green oases.

We speedily descended into the extensive and fertile plain of El Outaia, bounded by a fine mountain outline, and intersected by the Wed Kantara, which meanders pleasantly through it. P.'s horse suddenly became lame, having cast a shoe, which was found by an Arab mounted on a mule, who overtook us at the caravanserai, and brought it out of a sack which served him for stirrup and stocking. A pleasant prospect for poor P., a mountain ride of seventy-five miles with a lame horse, and his shoe in the saddle-bag. The caravanserai was in an Arab village, built on the site, and with the stones, of an old Roman city. Into the wall was let an inscription recording that, under the auspices of M. Aurelius Antoninus, Æmilius Pompilius restored the amphitheatre, which had fallen into decay by antiquity ("vetustate corruptam").

The host, who was an intelligent naturalist, showed us a pair of the rare mountain gazelle (*Gazella corinna, Buon.*), larger and stronger than the common species, and if possible a more beautiful animal; very docile and intelligent. I paid a visit to the celebrated salt-mountain mentioned by Shaw; a mass of rock-salt several hundred feet high, with perpendicular sides, let into the mountain range. It is perfectly pure, and

with the same bluish tint which pervades the Hadjera el Mehl.

Thence we rode on to our pre-arranged resting-place, El Kantara. The path was across a series of rugged nullahs, surrounded by tier after tier of ridges, the peaks still covered with snow, but the atmosphere below mild and warm. About three o'clock we came upon the remains of a Roman city. Tall stones set edgeways marked the line of the streets. There were gateways here and there, with the débris of old walls and foundations peering through the turf. A natural basin, or pool, hard by received the contents of a hot spring, near which we could trace the ruins of the "Thermæ," and which had probably decided the selection of the site. The water was perfectly sweet and clear, and its temperature 96° Fahr. An Arab, who had passed us some time before on a wretched horse, had slipped off his burnous and boots, and was revelling in a warm bath. Raising his chin to the surface, he invited us to join him; but I fear his society rather deterred us from the luxury.

The wide steppes of the Western Sahara appear in the eastern portion to be rapidly contracted into mere narrow terraces, and accordingly a steep ascent, and very short descent, brought us into another plain, that of El Kantara, where we rejoined the military road. Right in front were a dark range of mountains. Snowy heights were behind, and the clouds, partly rising and then descending from them, gave a shadowy and fictitious outline to the snow-capped summits.

The weather cleared as we forded the little stream, by whose banks we found enormous masses of tertiary fossils, chiefly a species of "chama." On the left stood a screen of crags, only not to be called mountains

because of the peaks behind them; the whole upheaved and vertical, as if by some great convulsion, and regularly serrated at the top. The valley contracted, a cul de sac at its further end. To the right stood out from the mountains several large red mamelons, like huge excrescences. One of these red hills was crowned by a rock in the shape of a colossal ruined castle, bastions and windows all entire, like an old Rhenish fortress. So complete was the illusion, that for some time we hesitated whether it were a ruin or not.

Far to our left we saw a chasm in the screen, and beneath it a dark line, our only hope of shelter or exit. The rain was dropping fast, the clouds descended upon the mountain sides, a mist was spread over the valley; about a score of Arab watch-fires dimly gleamed among the hills; while we pressed on as fast as darkness and P.'s lame horse would permit. At length we caught a distant glimmer ahead, which a dip in the ground suddenly obscured; then the barking of a dog was heard. We could distinguish no track, but aimed for the cleft, when suddenly we found ourselves at the gate of the wished-for caravanserai. A jolly host, a stout old Breton soldier, and his bustling matron received us. Clean rooms, clean beds, sparkling wood fire, and warm shed for the horses, and we retired to rest without anxiety for our mules, which had not yet arrived.

After an early breakfast the next morning we took a survey of the oasis of El Kantara, the most northerly limit of the palm-tree. It was a magnificent semi-alpine, semi-tropical scene. Below, a tumultuous foaming stream, its banks on either side clad with palms bending their feathery foliage towards the river, and

sheltering fig, apricot, peach, almond, and pomegranate trees. Rich velvet turf carpeted the ground on which we stood, and Arab dwellings peeped through the verdure, while the wall of cliffs started up close behind them.

We mounted, and rode round three Arab villages huddled together, the houses built of the stones of a Roman city, and inscriptions cropping out in every position from the Bedouin walls, telling of bygone civilization and even of Christian cemeteries. A mutilated draped statue leant against the side of the caravanserai.

We soon entered a stupendous gorge, or rather chasm rent through the cliffs. We looked up, and, like little black specks here and there, goats were nimbly scrambling almost out of sight among vultures' eyries. The vertical stratification rose perpendicularly on each side of us. The road was a mere ledge hewn by the Romans out of the side of the rocks, and winding through the pass. We looked down on the river far below us, tumbling tumultuously over its rocky bed. As we advanced an ancient Roman bridge (whence the name El Kantara, *i.e. the bridge*) spanned the chasm by a single arch, semicircular, of finely dressed stone in triple courses. Remains of alto-relievo sculptures, defaced by Arab or Vandal, could be traced on the sides. The buttresses were the solid rock. At either end were set up Roman inscriptions, nearly perfect, and on the rock facing us—for the bridge was at right angles with the road—was a short French inscription in honour of the regiment which first entered the Sahara. Below it the river formed a small cascade, and a solitary palm, the last straggler of its race, had found foot-hold in the side of the cleft and looked a pigmy shrub beneath us.

We rode over stones and pavement often traversed by the 2nd Legion of the Cæsars, the very key of the Sahara, and which any people, save Arabs, might have made a Thermopylæ. The cliffs almost met overhead, when suddenly, after crossing the bridge, we debouched on the plain beyond. We were now fairly enveloped among the ridges of the Atlas; and here, thankful for the care of an ever-watching Providence, I must crave permission to leave my reader, in the enjoyment of French roads, French conveniences, and French security, and trust soon to meet him again, on Punic pavements and amidst Roman cities, in that sepulchre of buried nations, the Regency of Tunis.

APPENDICES.

APPENDIX I.

On the Physical Geography of the Sahara.

Our ordinary application of the term "Sahara" for the great northern desert of Africa is not strictly accurate; and in these notes I have restricted its use to that portion of the country to which the natives apply it. They divide Africa north of the line into three portions—the Tell, the Sahara, and the Desert: the Tell being the corn-growing country from the coast to the Atlas; the Sahara the sandy pasture-land, where flocks and herds roam, from the Atlas through the Hauts Plateaux or Steppes to the region where all regular supply of water fails; and the Desert, the region which extends thence almost to the watershed of the Niger —arid, salt, affording no sustenance to cattle or sheep, but where the camel snatches a scanty subsistence, and which is, excepting in its rare oases, equally inhospitable to man.

The physical and geological characteristics of these regions vary considerably; but they are all comprehended by the Bedouin under the term "Mogreb," or land towards the *sunset*, of which the eastern limit is the Gulf of Cabes, and the western the Atlantic.

If we cast our eyes on the map of Africa, we shall see no portion of the globe apparently so compact—so self-contained. A peninsula, attached to Asia alone by a narrow isthmus, Africa exhibits no islands, like those which encircle Europe, struggling, as it were, to be freed from the continent. No deep gulfs and bays indent her shores: she stands compact and solid. The geological convulsions which have dislocated Europe have met with an impenetrable barrier in the ridge of the Atlas, which has sternly repelled every

encroachment. But we shall find within this self-contained continent very distinct lines of severance in its physical geography.

In the first place, the natural history of the Atlas bears scarcely any affinity to that of the rest of the continent; and this distinctiveness may at once be traced to natural physical causes. To the naturalist North Africa is but an European island, separated, it is true, from Europe by the Mediterranean, but far more effectually isolated from Central Africa by that sea of sand, the Great Desert. The Atlantic isolates it on the west, while a comparatively narrow but most impenetrable desert of ever-shifting sand cuts it off from Tripoli and Egypt, which on their part seem to lean rather on Asia than on Africa. No link attaches Barbary to the rest of the continent; no river supplies an arterial communication; not the most insignificant streamlet forms either a bond of union or a frontier line: the long Atlas chain abruptly terminates in Tunis, and sends not one solitary spur towards Africa; it rather seems by one of its branches to claim kindred with Europe. So far the Arab geographers are accurate in coupling "Mogreb" with Europe instead of Africa. They, too, have the tradition mentioned by Livy, Pliny, and Seneca, that Spain and Morocco were once united—an idea which must so naturally suggest itself to any one who has sailed through the Straits of Gibraltar, that it is needless to imagine that it had any foundation in historic memory.

If we might here hazard a conjecture, it would be that the same convulsions and upheavals which at the close of the Tertiary epoch indented the southern coasts of Europe, at the same time drained the ocean which hitherto had rolled over the plains of the Sahara, and submerged the low-lying lands which probably united the Canaries and Madeira to the main land. The natural history of these islands is so essentially European as to point to an identical centre of creation. We may then imagine that towards the close of the later geological epoch Barbary was a vast peninsula, linked to Europe by Gibraltar, and washed on

the south by the ocean of the Sahara, on the north by that inland lake which is now the Mediterranean.

But when, leaving the southern slopes of the Atlas, we enter upon the Sahara, the physical and geological characteristics are changed at once. Upon the surface of the secondary and some of the tertiary deposits we stumble over beds of rounded pebble and large gravel, besides the extraordinary mountains of pure rock-salt which in various places rise suddenly from the limestone.

To picture the Sahara, imagine what the north-east portion of England would be if completely drained of its streams and denuded of its vegetation: wooded dells transformed into rocky naked nullahs, and tillage plains covered with a soil pulverized by the combined action of heat, wind, and attrition.

With all its monotony, the Desert has its varieties. One day you laboriously pick your steps among bare rocks, now sharp enough to wound the tough sole of your camel, now so slippery that the Arab horse can scarce make good his footing. Another day you plunge for miles knee-deep in loose suffocating sand-drifts, ever changing and threatening to bury you when you halt. Sometimes a hard pebbly surface permits a canter for hours over the level plain amidst dwarf leafless dust-coloured shrubs. Perhaps, on surmounting a ridge, the mirage of a vast lake glittering in the sunshine excites both the horse and his rider. On, on, gallops the wiry little steed over sand hard and crisp, and coated with a delicate crust of saltpetre, the deposit of the water which at rare intervals has accumulated there and formed the Chotts and Sebkhas of the Desert. Occasionally the traveller is gladdened and refreshed by pitching his camp in a dayat, or reposing for a few nights under the palm-trees of an oasis.

The Sahara may be divided, as to its physical geography, into three distinct portions—the district of the Hauts Plateaux, that of the Dayats, and the southern level district of the Oases. The northern portion or steppes may be considered as commencing at the foot of the Atlas range,

where the Tell ends, and is bounded on the south by a tolerably well-defined range of mountains of inconsiderable height, commencing with the Djebel Amour in the province of Oran, and continuing thence as the range of the Bou Kahil from south-west to north-east, in a line parallel with the Atlas. This long range bears successively the names of Guern el Achi, between the provinces of Oran and Algiers; of Dj. Guera Zaghez, Dj. Dzioua, Dj. Weled ben Alia, on the frontier of the province of Constantine; Dj. Mehargua, near Bou Sada; and Dj. Metlili. The Dj. Chechar reaches the Tunisian frontier, whence the Dj. Dyr carries on the line to the eastward. This continuous chain forms a very distinct boundary-line, though it rapidly approaches the Atlas in its eastern portion, giving to the Hauts Plateaux the form of a wedge, with its narrowest extremity towards the East.

Of the central portion, chiefly characterised by its many dayats or waterless oases, Laghouat and Biskra are the principal towns, the latter, however, standing on its northern confines. The inhabited portions of the central Sahara lie chiefly in the basin of the Wed Mzi, or Djidi. When this basin has been crossed, the highlands to the south of it form the boundary-line, not so well defined, however, as the chain of the Amour, after which we enter on the region of the southern oases, gradually lost in the Great Desert.

The basin of the Mzi or Djidi is the principal feature of the Central Sahara. The Mzi rises in the Dj. Amour, in the province of Oran, and continues a broken and irregular course till it is finally lost in the Chott Melr'hir, between Tuggurt and Wed Souf. After descending from the Dj. Amour its traces disappear for a time in the sand, till it reappears at Laghouat, where, probably owing to the quantity of water dammed back for the use of the palm-gardens, it is lost a second time. After passing El Assafia, at a place called Ksir el Hiran, at its junction with the Wed el Hamar, it takes the name of Wed Djidi. Traversing the arid valleys of the Weled Djellal,

and the so-çalled forest of Saada, it can be traced until its final absorption in the Chott Melr'hir. Its course is about 400 miles in length, and it receives various affluents, but all of them dry in summer, and very occasionally having any surface water even in winter. In fact, the Wed Djiḍi itself but rarely comes to the surface at any time, and then only from special local causes, such as where, at El Assafia, a dyke of limestone appears to be thrown up transversely to its subterranean course. The water appears to rest upon a substratum of very hard limestone at a depth of from 30 to 60 feet from the surface, if we may judge from the wells sunk in the oases on its course. All its feeders flow from the north, except one insignificant ravine, the Wed Roddad, a little to the west of Laghouat. By far the most important of its tributaries is the Wed Biskra, which gives its name to the oasis and city it supports, and which, except in the very driest seasons, may claim the description of a small river in winter, and of a brook in summer.

It is, perhaps, to the Wed Mzi or Djidi that the story of Juba, related by Pliny * (lib. v., ch. 10), has reference, as being the source of the Nile. His tale is that the source

* Originem (ut Juba rex potuit exquirere) in monte Inferioris Mauritaniæ, non procul Oceano habet, lacu protinus stagnante, quem vocant Nilidem. Ibi pisces reperiuntur alabetæ, coracini, siluri. Crocodilus quoque inde ob argumentum Cæsareæ in Iseo dicatus ab eo spectatur hodie. . . . . En hoc lacu profusus, indignatur fluere per arenosa et squalentia, conditque se aliquot dierum itinere. Mox alio lacu majore in Cæsariensis Mauritaniæ gente Massæsylûm erumpit, et hominum cœtus veluti circumspicit, iisdem animalium argumentis: iterum arenis receptus conditur rursus xx dierum desertis ad proximos Æthiopas; atque ubi iterum senserit hominem, prosilit fonte (ut verisimile est) illo, quem Nigrin vocavere. Inde Africam ab Æthiopiâ dispescens, etiamsi non protinus populis, feris tamen et belluis frequens, silvarumque opifex medios Æthiopas secat, cognominatus Astapus, quod illarum gentium linguâ significat aquam e tenebris profluentem. . . . Sic quoque etiamnum Giris, ut ante, nominatus per aliquot millia, et in totum Homero Ægyptus, aliisque Triton . . . . postremo inclusus montibus, nec aliunde torrentior vectus aquis properantibus ad locum Æthiopum, qui Catadupi vocantur, novissimo cataracte inter occursantes scopulos, non fluere immenso fragore creditur, sed ruere.—*Plin. Nat. Hist.*, v. 10.

of the Nile is in a mountain of Lower Mauritania, where it forms a marshy lake called Nilides. Scorning to issue from this lake to traverse barren plains and deserts of sand, it hides itself in the ground for several days' journey. It soon reappears in Cæsarian Mauritania among the Massæsyles, passing through a lake greater than the first, but proving its identity by supporting the same animals as before. After having in some manner examined the civilization of man in those parts, it hides itself again in the sand for twenty days' journey, till it reaches the country of the Eastern Æthiopians. There it springs again from the source called Nigris, and forms the limit between Africa and Æthiopia, peopled by numerous nations, savage animals, wild beasts, and immense forests. It divides Æthiopia into two parts, under the name of Astapus, which, in the language of the country, signifies water springing from the darkness.

As this idea, however geographically impossible of the Nile, may be fairly presumed to have had some foundation, so far as the fact of a river in Mauritania flowing from west to east, and being lost in the sands, is concerned, it becomes a matter of inquiry on what river Pliny founded his idea. The story, so far as regards the statement of its losing itself for a second time in a lake during its easterly course, is true of the Djidi, to which, probably, Juba referred. May not the name Giris or "Gir" be connected with "Djidi"? Again, the statement that it was lost in the sand for twenty days till it reappeared as the Giris (or Siris) agrees with the fact of the Chott Melr'hir being twenty days' journey from the source of the Djidi.

It is curious to how late a period this notion of the origin of the Nile prevailed. Jul. Honorius, A.D. 460 (?), speaks of the river Nilotis rising on the south side of the Atlas, and burying itself in a lake of the same name which has no exit, just as Herodotus many centuries before had referred (ii. 32) the sources of the Nile to the north-west of Libya.

It does not appear that the Romans had advanced in their knowledge of the geographical configuration of the

interior of North Africa until the wars which the unhappy Theodosius, the general of Valentinian, had to wage against Firmus in the fourth century, revealed to them the true character of the country. Probably the origin of the confusion between the sources of the Nile and the Djidi lay in the fact that at that period the rivers of Mauritania supported the same animals as are still found in Egypt. Thus the bones of the hippopotamus frequently occur in the gravel of the Cheliff to this day, though all historic traces of its existence there have long been lost.

But to return from this digression. The centre of what I should term the southern parallel of the Sahara is marked by the basin of the Wed N'ça, which, in its uncertain appearance on the surface, in its subterranean water-level, and in its general features, resembles very closely the Wed Djidi. It is limited by the Southern Highlands which encircle the M'zab confederacy. Its course is irregular, but generally bears from north-west to south-east. Its principal affluent is the Wed El Bir, which joins it at Berryan, and it is finally lost in the sand at El Hicha, about ten miles north of N'goussa, after a course of about 140 miles. On each side of this principal basin are parallel secondary basins. The first is that formed by the Wed Zegrir, which passes Guerrara, and loses itself some half-day's journey beyond it in a hollow named Lekkaz—*i.e.* "deadly," from the poisonous quality of the water in some wells sunk there. The next secondary basin is that of the Wed M'zab, on the sides of which stand Ghardaïa and four other cities of the M'zab confederation, and whose oases support many thousand inhabitants.

Beyond this, further to the south, there is a third basin, at a much higher level, that of the Wed el Mia, said to receive a hundred tributaries, on one of which stands the Chaamban city of Metlili, and on another the Touareg post of Golea. This river can scarcely be traced after it passes the vast oasis of Waregla, unless, indeed, it find thence an underground passage to the Wed R'hir, of which, however, there are no external traces.

The mass of mountains which encircle the Beni M'zab are termed, in Arabic, Chebkha, or "net"—a name due to their configuration from the extraordinary number of small naked and rocky hills which interlace each other in every direction, forming a network of barren valleys. The Chebkha is gradually lost in the sand to the south-east.

The Flora of this southern district exhibits some marked contrasts with that of the Central Sahara. To the north of the Wed N'ça and the Wed Zegrir is found the *Pistachia terebinthus*, or "betoum," which gradually disappears as we advance to the south. There the ravines are sparsely clad by three species of tamarisk, called by the natives "átsal," which replace the "betoum," and are the *Tamarix Africana* of Desf., *T. Buonapartii* of Reboud, and *T. nov. spec.*? The wood of T. Buonapartii, the most common, differs from that of the ordinary tamarisk, is white, and its smoke evolves a strong sulphureous odour. We meet everywhere with the Sedra (*Zizyphus spina Christi*); and there occurs also, but more sparsely, another prickly shrub, which I never obtained in blossom, with a leaf like the hawthorn, and called by the Arabs "Bou Djedari."

The Chott Melr'hir, though fed by so many lines of drainage, is generally dry for seven months of the year, and yet it is the lowest depression in the whole of North Africa. There is a tradition among the Bedouin that formerly it contained a much greater supply of water, and that it was habitually navigated by boats. If this be correct of even the most remote epoch of historic memory, the steady elevation of the great central plateau must have continued long after the continent assumed its present character.

Not only does the Chott Melr'hir receive all the desert weds from the three provinces, but it is fed by a far more constant supply from the north, the entire drainage of the Mons Aures and the Dj. Amour.

The Mons Aures presents a front of about 120 miles from west to east, and the whole of its southern side is fur-

rowed by an infinite number of little ravines, of which the principal are the Wed Itel and the Wed Retem.

It is difficult to trace the precise limits of the Chott Melr'hir, but a depression of the average breadth of thirty miles extends from El Marier in the north of the Wed R'hir as far as the Gulf of Cabes.

APPENDIX II.

On the Geological System of the Central Sahara of Algeria.

Though the Atlas generally is of the Tertiary epoch, the whole country between it and Laghouat is the Secondary, rocky, and with mountain ranges running from N.E. to S.W. There are, however, some striking exceptions, which may be illustrated by the Guern el Meila, a day's ride to the N.W. of Laghouat. To understand this formation we must conceive several elliptical basins of diminishing size piled one upon another. The lowest and largest rests upon the flat surface of secondary rock, which is the base of the whole system. Several great fissures, which pervade all these superimposed basins, allow the water to percolate.

Again, on the other side of Laghouat, if we examine the chains of the Dj. Moudloua, Dj. Dakla, Dj. Zebecha, and Ras El Aïoum, we shall perceive that all four chains belong to the same system of basins, which, instead of being simply elliptical, as those of Guern el Meila, have experienced in two portions of their extent a contraction from upheavals, which has given them the form of the elevated ribs of a gourd with two depressed valleys. One of these contractions forms the dry bed of the Wed Mzi.

The Guern el Haouatha forms a third basin, incomplete towards the S.W.

The Dj. Djelouaj forms a fourth basin without any definite limits southwards, so far as I could trace it.

At Laghouat there is a fifth basin, formed by the Dj. Trisgrarine to the west and the Dj. Seridjab to the east.

From the Sebaa-Rous to Laghouat all these ranges of the

secondary period seem to belong to but one geologic epoch, that of the lower chalk formation. Limestone predominates in this formation, and it is this which constitutes the ridges of the Sahari, Senalba, Djellal, and the system of basin deposits so extraordinary about Laghouat. It is generally of a saccharoïd structure, and of a variable colour, greyish white predominating. By atmospheric action the surface of this limestone has become furrowed and polished, and presents a peculiar wavy appearance. It affords good lime for building purposes. It contains considerable deposits of freestone with much comminuted quartz, which varies in colour and hardness. At Guelt Estel and at Djelfa it supplies good building-stone; elsewhere, as at Recheg, it is so soft as to yield to the pressure of the fingers. Its general colour is yellow and red. This sandstone encloses nodules of flint of various colours, and semi-transparent. By disaggregation they become detached from the softer medium of sandstone in which they are embedded. As the wind removes the sand, they form a sort of shingly beach of pebbles, many of them a very pretty chalcedony, which can be cut and polished, and which are exported in some quantity to Paris for the manufacture of cane and knife handles.

There are also, as near the Rochers de Sel, a few deposits of marl, green and red, and of remarkable brilliancy.

The upper deposit of limestone is marked by regular beds of gypsum of vast extent. Gypsum has been found everywhere—at Djelfa, Aïn el Ibel, &c. The regularity and extent of these beds of gypsum is a peculiar characteristic of these secondary rocks, and does not present itself in the secondary formation of the Atlas district.

But to the south and east of Laghouat, in the district of the dayats, we come upon a superincumbent and shallow alluvial soil of the very latest tertiary or of diluvial formation. At the foot of the mountains this is composed of rolled pebbles embedded in a limestone matrix. Near Laghouat the surface is covered by a débris of chalk, with much limestone intermixed.

The further we proceed from the mountains the nodules diminish in size, and the soil is often composed only of a yellowish white calcareous rock, which is raised here and there in ridges more or less thick. It is a kind of crust which covers the soil as with a cloak. Very hard at the surface, it is, on the contrary, extremely friable below, and there it is mixed with green or grey clay. This last-mentioned rock presents very considerable deposits of diluvial soil, and encloses crystals of gypsum of greater or less size, which are often sufficiently numerous to deserve the name of regular deposits.

The diluvial formation exhibits superficial deposits more or less extensive between all the mountain ranges. Even as far north as the two Zahrez* it forms the soil of the great basin which encloses these lakes. It appears again on the banks of the Wed Melah, where I found several fossils, between the Rochers de Sel and Djelfa; and again may be detected between the Dj. Senalba and Djellal.

The only diluvial traces between Djellal and Laghouat consist of very limited deposits of rolled pebbles upon the plateaux, and beyond the reach of any existing or extinct streams. I was particularly struck by the fact that several of my fossil shells from this district, in the *superficial* deposit, proved specifically identical with fresh-water tertiary fossils given me by my friend Capt. Spratt, and obtained by him in the fresh-water deposits of the region of the Black Sea. May not further research, perhaps, show us that, at some no very distant geologic epoch, a vast chain of fresh-water lakes, similar to those of North America at the present day, extended from the plateaux of the Western Sahara as far as the neighbourhood of the Caspian?

The geological system of the M'zab country, where it differs from that of the Central Sahara, may perhaps be explained by the supposition of partial cataclysms occasioned by earthquakes. The basin appears to be composed

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* *Vide* page 71.

of a triple bed, the lower of which consists of a dark limestone of great hardness, the second of white sandstone, and the upper of a white limestone of very fine texture, well adapted for building purposes. The water drainage has created between the two upper beds an accidental and very thin bed of sandstone, porous, friable, and mixed with silex. It is solely to the supply of water in this narrow stratum that the oases of the M'zab owe their existence. In the two lower beds, which crop out in some of the ridges round, a few fossils (meiocene?) may be obtained. I gathered here some good specimens of *Cyprina Islandica*. This country, like the Northern Sahara, appears to have experienced a double aqueous invasion: the first at the more distant period of salt water: the second at the transitionary period of fresh water alluded to above. This is marked by the character of the fossils, but the whole basin may be looked upon as of the upper chalk period.

In such a formation but little mineral wealth can be expected. The most interesting mineral products are the salt hills and lakes. The Rochers de Sel have already been described. It has been suggested to me that these should be considered as an eruption of argillaceous, calcareous mud, gypsum, and rock-salt, upheaved across the secondary and tertiary deposits.

The tertian epoch appears to be marked by some scanty remains in the basin of the Zahrez, under the shallow diluvial deposits. It appears again in the banks of the Wed Melah, composed of regular beds of puddingstone and of yellowish sandstone, analogous in appearance to the tertiary formation at Boghar. The fossils which I collected near the Rochers de Sel have been assigned to the meiocene period. From this we may conjecture that, while the Dj. Senalba was above the ocean, a deep basin formed its deposits in all the country to the northwards. Above the salt-rock, which is about 130 feet in height, the deposit consists of fragments of limestone of every colour, mingled with crystals of white and red gypsum, and united by a marly cement easily acted upon by atmospheric causes.

There is another quarry of rock-salt, partaking rather of the character of a layer than a cliff, at Aïn Hadjira, to the south-west of the Rochers. The stratum is not above thirteen feet high, and perhaps under 200 feet in length, and worked by the Arabs to the day. The deposit in and round the two Zahrez or great salt lakes, is so abundant that these almost deserve the name of a third salt-mine.

In the Dj. Tisgrarine, near Laghouat, is a quarry of oxide of manganese, varying from four inches to three feet and a half, and traversing the limestone. There are other traces of manganese in the basin of Laghouat, and some quarries of indifferent marble. Close to Aïn el Ibel, where the Arabs were quarrying for the new buildings,* traces of shining black lignite were pointed out to me by the French overseer, who was sanguine in his belief that he should soon discover coal. But the lignite, which was intermingled in a stratum of green clay, had no regularity, and formed no continuous bed, being merely the result of the carbonization of isolated trees on the spot. The quarryman, however, evidently believed me actuated by an English jealousy of the discovery of foreign coal, when I assured him of the impossibility of the existence of coal in such a formation.

Hot springs occur in several places, both in the Western and Eastern Sahara. There is one at Charef with a temperature of from 90° to 96° Fahr. They are very abundant in the Wed Hadjira, which flows into the Zahrez, springing both on the banks and in the bed of the stream. The water is of a subacid taste, indicating by occasional air-bubbles the presence of carbonic acid gas. Nitrate of silver produces in this water a white deposit, showing the presence of a chlorine and the absence of a sulphate. The water from these springs deposits a thick, white, slimy sediment in its course. Near Djelfa I saw another warm spring, not sulphureous, of the temperature of 86° Fahr., which

* *Vide* page 82.

was carefully dammed back, and used to water the cultivated land.

In turning from the basin of the M'zab to the Eastern Sahara, extending through the south of the province of Constantine, the Souf, the Djereed, and to the edge of the Gulf of Cabes, under the Great Sebkha, or Chott el Melah (the ancient Lake Tritonis), we shall find the same geological system which pervades the western portion, but with fewer of the distinct little basins which vary it, and with more extensive diluvial deposits. As far as we could trace them, the strata are generally horizontal up to Biskra in the north and Gufza in the east, or very slightly inclined, consisting of alternating beds of greensand (?), gypsum, and clay. These beds form the immense plateaux extending from 31° to 35° N. lat., and from 5° to 9° E. long., and containing very slight depressions. There are the same traces of diluvial action, marked by the pebbles of chalcedony and the silex spread over the surface at wide intervals, as meet us in the west.

The most interesting portion of this district is the Wed R'hir, a long line of depression, gradually sloping from the Touareg desert, some fifty miles S.W. of Waregla, lat. 30°N., long. 5° E. circ., with its surface occasionally moistened by salt lakes, but without any springs of fresh water, yet affording at intervals throughout its whole extent a never-failing supply of sweet water through artesian wells which penetrate the upper limestone. An immense population is supported in this Wed R'hir, which is, for many days' journey, one continuous line of oases, with the towns of El Marier, Tamerna, Tuggurt, Temaçin. After a further interval, in which the traces of the wed are lost, it reappears in the oases of N'goussa and Waregla, and gradually is lost in the highlands of the south. But it is probable that even here the subterranean course of the water can be traced, and that the Touareg owe their means of subsistence to their knowledge of wells on the line—a knowledge which no bribe will ever induce them to disclose.

The descent from Waregla northwards is marked, though

gradual. Waregla is some 1500 feet above the sea; Tuggurt, four days' journey north, is only 300 feet; while, as we pursue our course northwards, we find the Wed R'hir terminating in the Chott Melr'hir, at a depression of eighty feet below the level of the Mediterranean, according to the French engineers. This appears to be the lowest point of the whole Sahara. To the northward of the Chott the land more rapidly rises, until at Biskra, seventy miles to the north, we find ourselves at an elevation of 260 feet above the sea-level.

This basin extends eastwards as far as the Gulf of Cabes. The Chott el Melah (Tritonis) is certainly at a greater elevation than the Melr'hir, from which it is separated by a weary waste of shifting sandhills, "dunes;" but still it scarcely seems to reach the sea-level, and is only separated from the Mediterranean by about thirty miles of sandhills and rocks, among which is the salt-rock of Dj. Hadyfa* and the Dj. Mansoura.

The Wed R'hir is not the only feeder of this basin. To the west of Tuggurt is another long wed, in which are some few scanty wells, as at Dzioua, which, though only fifty miles distant, is at a considerable elevation above the Wed R'hir.

A little to the north of this enters a still more important feeder from the west, the Wed Djidi, a continuation of the Wed Mzi, in whose basin stands Laghouat. Lost for the most part in the sand, it may still be traced at intervals; and though no attempts have been made in its lower course to bore for artesian wells, it can scarcely be doubted but that it will prove no exception to the other weds, and may yet be rendered serviceable for the support of man.

The whole of the low levels round the chott are covered, for several days' journey, with the efflorescence of saltpetre; and in the north the traces of a few Roman ruins, a day's

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* *Vide* page 77.

journey S.E. of Biskra, prove that the manufacture of saltpetre was here carried on in very ancient times. Proceeding to the northwards of the Melr'hir, we rapidly lose the traces of the diluvial deposits, and come upon the chalk, chalk marl, and greensand, in regular succession. These strata, with some slight modifications, dip regularly to the southwards. The three last ridges of the Mons Aures towards the south, the Dj. Chechar, Dj. Khaddou, and Dj. Amar, present us with these three stages of the cretaceous group in regular succession.

This cretaceous bed is covered, in the plains of El Kantara, north of Biskra, by formations of the meiocene period, and soft arenaceous beds, over which again near the foot of the mountains appears a sand deposit, perhaps diluvial. The plain of the Ziban to the N.W. of Biskra is composed of arenaceous beds, covered with clay, sand, and strata of gypsum, of which we find traces the whole way to the Chott Melr'hir. But to the west of Biskra there is very little gypsum, and few traces of any later deposit than the cretaceous. The depressions are there covered not with gypsum, but with beds of sand, gravel, and clay.

When we advance to the Dj. Metlili at El Kantara, the boundary between the Tell and the Eastern Sahara, the perpendicular face of the mountain is easily distinguishable. Masses of nummulitic limestone, with a band of gypsum, and occasional irruptions of rock-salt, are mixed with layers of marl. The largest mass of rock-salt is at El Outaia,* described long since by Shaw, of a greyish blue, and accompanied by extensive deposits of gypsum. The strata here are much dislocated, and the disturbing forces have left in the confused position of the surrounding strata far clearer proofs of the means by which the rock-salt was ejected than at the isolated Rochers de Sel. Nearly all the potable water of this district is impregnated with chlorine of soda. There are many warm springs. I bathed

* *Vide* page 76.

in one, El Hamman, near El Outaia, where the water, which was slightly salt, and with an hepatic smell, had a temperature of 95° Fahr. In another hot spring near Biskra I found swarms of a little fish (*Cyprinodon dispar.*), which has been identified with those found in the warm springs of Egypt, enjoying themselves at a temperature of from 75° to 85° Fahr.

NOTE.—Through the kindness of M. Josse, the engineer employed by the French Government in sinking the artesian wells of the Wed R'hir, I am enabled to give the particulars of the section of the bore at Tamerna.

Mètres.	
3·05	Vegetable soil.
·65	Red sand clay.
·40	Clay with gypsum.
·20	Hard red clay.
1·75	Ditto, sandy.
·67	Gypsum, sand, and clay.
7·63	Hard red clay, with gypsum.
3·97	Yellow clay.
1·01	Sand, wet, with a little fresh water rising.
3·89	Gypsum, earthy.
1·17	Red clay.
2·89	Sandy clay and gypsum.
3·80	Nodules of gypsum bedded in clay.
3·86	Fluid red sand.
·58	Hard sandstone.
9·08	Red sand, more or less hard.
2·35	Yellow clay, with masses of rolled gravel.
2·79	Hard sandstone.
·69	Ferruginous red clay, with rolled pebbles.
8·37	Hard sandstone in detached masses.
·80	White sand, with a jet of water rising to the surface at the rate of 4000 litres a minute.
60·00	

APPENDIX III.

On the History of the Sahara.

The records of history afford few and indistinct glimpses of the changes and convulsions which have kept the Sahara in a state of chronic barbarism. The loss is not great; little interest and less profit can attach to the chronicles of tribes who, unimproved themselves, have never affected their neighbours save by some predatory inroads. Their submission to the Romans was never more than partial and temporary. The remains consequently of Roman occupation are very scanty, consisting chiefly of forts hastily thrown up during the pursuit of fugitive tribes. These are more evident in the eastern than in the western districts.

None are known in the (French) Algerian Sahara beyond Djelfa. But in the Eastern Sahara, among the plains of the Djidi, roamed over by the Weled Naijl, at the destroyed and desolate oasis of Doussan (query, anciently *Decenna?*) are traces of Roman walls. On the banks of the Wed Djidi near this spot are a line of ruins of gates, which seem to mark the extreme point of Roman occupation, since no trace of ruins which can be with any reason ascribed to them has yet been discovered further south.*

As we travel northwards from this point, at Volga, in the Ziban, are the faint traces of a Roman fort. Nothing further occurs to arrest the antiquarian till in the north-east portion of the Sahara, between the Wed Beitam and the Wed Barika, are the traces of the ancient and extensive city of *Tubna*, of which nothing remains above ground beyond the pavement of the citadel.

Above El Outaia, a day's journey north of Biskra, are

* See page 280.

found ruins which attest their importance by an inscription now preserved in the wall of the modern caravanserai, proving the former existence of a theatre at this spot. The place was probably the Messarfilis of the itineraries, and derived its importance from the salt-quarries in the neighbourhood.

Above this, at the confluence of the Wed Guebli and the Wed Lekhernin, in the oasis of El Kantara, are a few Roman ruins.

In the gorge of El Kantara itself, the exact boundary-line of the Sahara, is the beautiful and well-preserved bridge of Roman construction, and on the left bank of the gorge among the rocks are the traces of a paved way, which in some places is still perfect.

The only other Roman remains which we met with are on the road from Biskra to Zeribet el Wed, at Burdoun in the Zab Chergui, at Setif Zama, and again at the village of Thouda.

The Romans appear to have had very little idea of the distinct races of the Sahara, but at first comprised the northern, or Numidians proper, with the southern and central, or Gætuli, under the common appellation of Numidians (*νομάδες*), which they subsequently confined to the tributaries of Carthage. Both these names were unknown to the natives themselves. It is curious to remark the very different traditions related by Sallust, of the country having been settled from Spain, and the later one of Leo Africanus, that the wandering tribes derived their origin from the fertile coast region of Tunis.

The first distinct mention of the Saharan tribes occurs in the reign of Valentinian, A.D. 373; when the oppressed provincials rose under Firmus against the tyranny of Count Romanus. The unfortunate Theodosius, after landing at Gigeli with a small force, penetrated the Atlas, and completely routed Firmus, who fled to the Sahara, and was received by Igmazen, King of the Isaflenses. Although Ammianus Mar. tells us that Firmus fled as far as the land of dates and the borders of the deserts, we cannot place

the Isaflenses south of Djelfa; and as far as the indistinct record of Ammian can be understood, Igmazen ruled over the country from Medeah to Laghouat, residing somewhere in the Djebel Sahari. So completely had the imperial authority been lost beyond the Atlas, that we are told the savage inhabitants had forgotten the very name of Roman. Igmazen, repeatedly defeated by Theodosius, at length consented to deliver up his guest, who, however, anticipated the vengeance of his conquerors by strangling himself in the night. His dead body was surrendered by Igmazen, and Theodosius returned in triumph to Setif. It was probably during this campaign that the fortified camps near Djelfa were thrown up. (Ammian, xxix. 5; Gibbon, ch. xxv.)

We have no proof that Christianity, however successful in the north, was ever accepted by the Gætulians of the south, for the Beni M'zab, who confess to having embraced the Gospel, were at that time inhabitants of the Tell. On the contrary, Procopius (vol. i., p. 334, ed. Bonn) tells us they readily united with Genseric in his attacks upon their Christian suzerains, A.D. 429, and committed atrocities which rivalled those of their barbarian allies. But with the usual fickleness of such tribes, they soon became dissatisfied with the Vandals, and rendered considerable assistance to their old enemies the Mauri in recovering part of the conquests of Genseric from Thrasamund his second successor.

Belisarius in his most successful expedition never penetrated beyond the Tell; and Numidia and Gætulia disappear from history, until the Arabs under Akbah or Okbah bèn Nafi, lieutenant of the Khalif Moawiyah, after the conquest of Egypt, advanced to the westward by a hitherto untrodden route. By the aid of their camels, now first introduced into Africa, they penetrated behind the colonies of Cyrenaica and Tripoli, and, emerging to the south of Tunis, in A.D. 665 took possession of Gætulia before they thence established themselves on the littoral. Okbah, whose name is still consecrated by many a mara-

bout or cenotaph erected on the spots where he halted in the Sahara, performed a feat never since achieved, and traversed the country until he caught sight of the Atlantic. (Gibbon, ch. li.) After the defeat and death of Okbah the tide of Arab invasion fell back for a time. The triumphs of the Berber Queen, Cahina, were but of short duration; and Hassan, the Governor of Egypt, and his successor Musa, more permanently established the supremacy of the Khalifs in the Sahara as well as on the Atlas.

For several centuries we hear nothing more of the country, till, during the Saracen dissensions in Spain, the Berber chief, Youssef ben Tachfin, in A.D. 1026, consolidated an independent power in Gætulia. His tribe, the Zenaga, though they professed the Moslem faith, were, in the opinion even of their rude neighbours, barbarous and uncivilized. They were enlightened by the zeal of their apostle, Abdallah ben Yussu, who named them, from their religious ardour, El Merabith.

By the aid of their fanaticism Abdallah established a Berber empire throughout the whole south, under his dynasty, known afterwards by the name of the Almohades. From this epoch the lengthy native chronicles, many of which have recently been translated or epitomized by the French Orientalists, furnish a weary record of intestine dissensions until the time of Barbarossa, A.D. 1500.

After that period the western tribes, including those between Laghouat and Waregla, vacillated in their allegiance between Algiers and Morocco, both of whom made occasional incursions into the interior. The northern tribes acknowledged the Bey of Tittery, while the eastern and most populous portion paid a fitful tribute to the Bey of Constantine, when he seemed strong enough to be able to exact it; and the Djereed or Tunisian Sahara yielded a steady obedience to the less capricious sway of the Beys of Tunis. In 1844 the French first visited the western Sahara, when Laghouat submitted to an impost of 30,000 francs.

In 1852, the tribes having reasserted their independence,

Generals Pélissier and Yusuf advanced with two columns to Laghouat, when for the first time the Arabs used cannon transported inland from Morocco, and the storming of their citadel was marked by the loss of General Bouscaren, who fell in action.

The north of the Eastern Sahara had been crushed in 1849 by General Herbillon, and by Canrobert in 1850. In 1853 the southern Sahara of Oran submitted after the defeat of the Marocains. In 1854 the Beni M'zab voluntarily entered into an alliance of defence on payment of a small tribute. This example was followed in the succeeding year by Waregla, now isolated from Morocco. In 1855 General Desvaux by a rapid reconnaissance obtained the submission of the Wed R'hir, and especially of Tuggurt, which was soon followed by the acknowledgment of French suzerainty on the part of the dependent oases of Souf.

Thus a population of about 750,000 has been reduced under the Imperial dominion, but the natural obstacles and the nomad habits of the Touareg would seem to preclude the hope or the fear of any further extension of French conquests to the still independent regions of the south.

APPENDIX IV.

CATALOGUE OF THE MAMMALS OF THE SAHARA.

N.B.—THE ape (*Pithecus Inuus*), though common in various parts of the Atlas, never extends its visits further south.

Family, CHEIROPTERA (BATS).

Myotis Murinus, L. (mouse-coloured bat). Laghouat.
Miniopterus Schrebersii, Less. Boghar.
Rhinolophus Clivosus, Cretz. (horseshoe bat). Laghouat.

Order, FERÆ. Family, FELIDÆ.

Felis Leo, L. (lion). The lion can scarcely be looked upon as an inhabitant of the Sahara, although it occasionally wanders into the northern districts of the Tunisian Djereed, and thereby claims a place in this list.

Felis Pardus, L. (panther). Occasionally met with in scrub. I only came across the recent traces on one occasion, near N'goussa. Arab. "Nemeur."

Felis Jubata, L. (chetah, or hunting leopard). Well known to the Arabs of the south under the name of "Fehed."

Felis Caracal, L. (Barbary lynx). Very common wherever there is wood. I possessed a young one for some weeks, which throve well on milk and sops. It was playful and not more timid than a kitten. In Arabic "Anad el arg."

Felis Lybicus, Olivier (booted lynx). Extends further into the desert than the last, and preys on the poultry-yards of the oases, living in the M'zab country among the rocks, known by the natives under the name of "Kot el khla."

Felis Catus, L. (wild cat). Abundant in the Djebel Senalba, and probably universal in woods. Several were brought in by the Arabs, all of which had black feet, and appeared to me to be a race distinct from that of Europe.

Felis Margarita, Loche (Marguerite's wild cat). A new and very elegant species discovered by Captain Loche near N'goussa, and described by him in Rev. Zool., 1858.

Family, VIVERRIDÆ.

Hyæna Striata, Zim. (striped hyæna). Universally distributed. Arab. "Dubbaa."

Herpestes Numidicus, Cuv. (Numidian ichneumon). Chiefly in the northern Sahara. Arab. "Zerdi."

Genetta Afra, Cuv. (the genett). Very common among the bushes. Arab. "Kot el ghali."

Genetta Buonapartii, Loche. A pretty new species described by Captain Loche, Rev. Zool., 1857, much smaller than the common genett, and differently marked. I obtained it between Djelfa and Laghouat.

Family, CANIDÆ.

Canis Aureus, L. (jackal). Universally abundant. Its monotonous wail may be heard every night, whether by the desert camp-fire, or under the protection of an oasis. Arab. "Dheep."

Vulpes Vulgaris, L.; var. *Atlantica*, Wagn. The common fox of the northern districts. Arab. "Tsaalb."

Vulpes Niloticus, Cuv. (Egyptian fox). Reddish above, and grey instead of white beneath. Smaller than the last, and more abundant southwards.

Vulpes Famelicus, Less. This pretty little fox seems entirely confined to the southern limits of the Algerian Sahara.

Fennecus Brucei, Desm. (the fennec). This little animal burrows throughout the whole of the rolling sand deserts which extend from Waregla to Souf. We used to see them brought into market by the Arab boys at Waregla, Tuggurt,

and Souf. I had two for some months, who became very tame, and nestled every night by my side. No pet can rival the fennec in grace and interest. Not above half the size of a cat, it has all the wiles and actions of a fox, and when alarmed by the sight of a stranger will run under a chair or into a corner, and vociferously give forth its tiny bark. My little favourites were fed on milk and morsels of meat, but showed great fondness for dates. The large ears and long bushy tail of this lovely creature give it somewhat the appearance of a squirrel. My specimens either escaped or were stolen as we were about to embark for England. Arab. "Fenek."

Family, MUSTELIDÆ.

Putorius Boccamela, De Selys (African weasel). Very like our common weasel, if not identical.

Zorilla Vaillantii, Loche; Rev. Zool., 1856 (Zorillo). Confined entirely to the central and southern Sahara.

Family, TALPIDÆ.

Macroscelides Rozeti, Duv. (elephant shrew). This extraordinary little creature is confined to certain districts of the Sahara, where it is very local, and burrows among the rocks. Its interest as a curiosity is well known to the natives, who procured us several specimens. It leaps like a jerboa, and appears to feed on seeds and beetles, for the latter of which it searches in the sand with its long snout. Arab. "Far el kheil."

Sorex Tetragonurus, Herm. (square-tailed shrew).

Sorex Araneus, L. (common shrew).

Sorex Agilis, Le Vaillant (Mauritanian shrew).

Erinaceus Algirus, Duv. (Algerian hedgehog). In the north.

Erinaceus Deserti, Loche (desert hedgehog). Much smaller than the last, and of a sandy colour. Arab. "Ganfoud."

Order, RODENTIA. Family, MURIDÆ.

Mus Rattus, L. (black rat). Still maintains its position, as the Norway rat does not appear to have penetrated yet into the interior. Arab. "Far el kla."

Mus Alexandrinus, Geoff. (Alexandrian rat). In the plains.

Mus Sylvaticus, L. (field mouse). In the north.

Mus Musculus, L. (mouse). In the oases.

Mus Barbarus, L. (striped mouse). This large and beautifully striped animal we dug out of holes in barley patches. It does not go far south. Arab. "Zordani."

Mus Dichrurus, Cuv. (two-coloured tailed rat). In the plains of Aïn Oosera.

Mus Chamæropsis, Le Vaill. (palm-rat). Lives in great numbers in the date-palms of the M'zab country, nesting in the heart of the crown, where it lays by a store of dates for winter supply. Few trees are without their pair of inhabitants, and the natives know well where to search for the stores for their own use. The palm-rat is very seldom known to descend from its tree when it has once selected its habitation.

Psammomys Obesus (great sand-rat). Universally present, but never in large numbers.

Family, HYSTRICIDÆ.

Hystrix Cristata, L. (porcupine). Common on the southern spurs of the Atlas.

Family, LEPORIDÆ.

Lepus Mediterraneus, Wagn. (Mediterranean hare). Extends throughout the whole of the Sahara as on the sea-coast, but is generally of a much paler or more tawny hue when found inland. Arab. "Ernib."

Lepus Ægyptius, Geoffr. (Egyptian hare). I obtained one specimen near the oasis of Guerrara, this being, so far as I knew, its extreme north-western limit.

Family, JERBOIDÆ.

Dipus Jerboa, Desm. (jerboa). Very common on all the sandy plains where a stunted vegetation is found. During early morning these active little creatures may be seen bounding over the sands in all directions. Arab. "Djerboa."

Dipus Ægyptius, Wagn. (Egyptian jerboa). Confined to the southern portions of the Sahara.

Dipus Deserti, Loche (desert jerboa). This very small and pale-coloured jerboa was discovered by Captain Loche in the environs of Waregla, whence I possess a specimen.

Alactaga Arundinis, Cuv. (African alactaga). This animal, undistinguished by the natives from the jerboa, is generally distributed in all suitable localities.

Gerbillus Melanurus, Gray (black-tailed gerbille). Hundreds of these lively animals may be seen sporting over the plains of Aïn Oosera and Aïn el Ibel every morning, as plentifully as rabbits in a warren. They burrow after the same fashion, having always two or more exits from their nest, and are extremely difficult to secure, as even when mortally wounded they contrive to escape into their holes and bury themselves in the sand.

Gerbillus Campestris, Le Vaill. (field gerbille).

Gerbillus Shauii, Duv. (Shaw's gerbille).

Gerbillus Selysii, Pomel. (De Selys' gerbille).

Besides these species, all of which occur in various localities, Captain Loche has described the three following, which I have seen in his collection, but have not had the good fortune to meet with myself.

Gerbillus Gerbii, Loche (Gerbe's gerbille).

Gerbillus Schoüsboëii, Loche (Schousboë's gerbille).

Gerbillus Minutus, Blainville (pigmy gerbille).

Myoxus Mumbyanus, Pomel. (Algerian dormouse). Found in woods near Boghar.

Ctenodactylus Massonii, Gray (Gundi marmot).

We met with this marmot in the rocks near Berryan. I have also seen many others, and am inclined to believe that a second and probably a third species occur in the rocky districts of the southern Sahara.

Order, UNGULATA. Family, BOVIDÆ.

Gazella Dorcas, Cuv. (gazelle). Found in small troops in every portion of the Sahara, and is the principal large game to be depended on for food, especially in the neighbourhood of the dayats beyond Laghouat, where its pasturage is abundant. The fawns are dropped in the early summer, and follow the dam until towards the end of autumn. The Bedouin gather the droppings, which have a strong aromatic scent, to mix with snuff. Arab. "Ghazala."

Gazella Corinna, Cuv. (the corinna). Smaller than the preceding species, and with shorter horns. It appears to be confined chiefly to the more rocky districts of the south.

Gazella Kevella, Cuv. (the kevel). Confined to the scantily wooded slopes on the southern spurs of the Atlas, especially south of Teniet el Haad, in western Algeria.

Addax Nasomaculatus, Gray (Addax antelope). Exists sparingly in the vast region between Waregla and Souf, especially to the south of the latter. We saw one not far from Guerrara in the M'zab country. Arab. "Meha."

Musimon Tragelaphus, Gerv. (maned moufflon). This magnificent sheep is far from uncommon throughout the whole of the mountain districts, whether wooded or bare. The officers of Laghouat frequently pursue them, but the chase is attended with no little difficulty and is seldom successful; for, true "wild goats," they betake themselves at once to the highest cliffs and rocks, and bound up the most inaccessible precipices. We saw one that had been shot as far east as the Tunisian Djereed. Arab. "Aoudad."

Alcephalus Bubalis, Blain. (the bubale). The hunters of Souf frequently obtain this, the largest of the wild game of North Africa, but I do not think it ever ventures north of the Wed R'hir and M'zab districts, while its home is certainly further south. It is considered the most savoury meat of the desert epicure. It was well known to Shaw. Arab. "Bekkhra el wahch."

Family, EQUIDÆ.

Onager ? I have in p. 318 mentioned the wild ass of the Souf desert, but the species I am unable to decide.

Family, SUIDÆ.

Sus Scrofa, L. (wild boar). Sometimes found, as at Boghar, on the northern limits of the Sahara.

NOTE.—It seems evident that the larger wild animals of Northern Africa have been rapidly decreasing in numbers, and are in process of speedy extinction. Dr. Shaw, 150 years since, enumerates in his Travels (vol. i. pp. 310 *seqq.*) five species of large ruminants, which from his descriptions must be the bubale, the aoudad or wild sheep, the addax, and the gazelle, as well as the stag (omitted above, as not extending into the Sahara proper). It is certain that Dr. Shaw himself never penetrated beyond the coast, and yet he had seen all these creatures brought in by the natives. At present, with the exception of the common gazelle, none of them are ever seen in any of the markets: they are unknown even by name to the Arabs of the Tell, and few European colonists have ever heard of their existence. Yet the accurate and careful Shaw speaks of them all as common and familiar, much as an inhabitant of the Cape might write of the springbok. As the population has not increased, but rather retrograded, we can only surmise that the substitution of the flint and steel gun for the matchlock of the Bedouin, a change which has taken place within the present century, has been fatal in its results to all the larger game.

APPENDIX V.

Birds of the Sahara.

Each portion of the Sahara—the rocky ridges, the sand-drifts, the plains, the chotts or salt-plains—has its peculiar ornithological characteristics. But by far the most interesting localities are, as might have been anticipated, the dayats and the oases. Here are the winter quarters of many of our familiar summer visitants. The chiff-chaff, willow-wren, and whitethroat, hop on every twig in the gardens shadowed by the never-failing palm; the swallow and the window martin thread the lanes, and sport over the mouths of the wells, in pursuit of the swarming mosquitoes; the hoopoe solemnly stalks on every dunghill, a cherished and respected guest; the white shrike perches motionless on the extremity of the palm-leaf; while a pair or more of the Egyptian turtle-dove nestle in the centre of almost every tree; and a random shot is pretty sure to start from under the dates a dozing "booma," or little owl. These peaceful retreats seem to be rarely visited by any Raptor more formidable than the kestrel.

Not so in the dayats. Here the golden eagle, the royal and Arabian kites, hold court and courtship, and carry on a perpetual though bloodless warfare with the raven. The shrubs are occupied by the shrike, by small flocks of the long-tailed Numidian malurus, and the lovely little Moussier's warbler, whom I might almost term the ornithological feature of the dayat; whilst, heard but not seen, the Dartford warbler chirps forth his incessant pittĕchou, pittĕchou.

If you wish to make acquaintance with the tribe of the rockchats and wheatears, you must follow the marmots to

the rocky defiles of extinct streams, the "Weds" of the Bedouin. The hard, gravelly plains are the homes of the sandgrouse, and the various thick-billed and stout-billed larks; while the loose sands vainly conceal the burrowing beetles from the long bills of the ground-larks. On the surface of the chotts the little plovers and other grallatores incessantly run along, as if awaiting the returning tide of the primæval ocean which once swept over them.

LIST OF BIRDS NOTED IN THE SAHARA.

1. Griffon Vulture (*Gyps Fulvus*). Arab. "Nissr."

As, happily for the traveller, camels do not die every day under the weight of their water-skins, the griffon does not habitually resort to the desert; still he occasionally gives it a passing call, though, if his meal be deposited near an oasis, he is usually forestalled by the hyæna, who lurks in the weds.*

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* On one occasion a camel in our caravan, having become footsore, had to be slaughtered on the spot, and his burden distributed among the others. Our attendants selected the tenderest morsels for kous-kousou, and it was not till next morning that a vulture scented, or rather descried, his prey. That the vulture uses the organs of sight rather than those of smell seems evident from the immense height at which he soars and gyrates in the air. In this instance one solitary bird descended, and half an hour afterwards was joined by a second. A short time elapsed, and a Nubian vulture appeared self-invited at the feast; and before the bones were left to the hyæna, no less than nine griffons and two Nubians had broken their fast, though not satisfied their appetites.

I have observed the same regular succession of diners out on other occasions. May we not conjecture that the process is as follows? The griffon who first descries his quarry descends from his elevation at once. Another, sweeping the horizon at a still greater distance, observes his neighbour's movements, and follows his course. A third, still further removed, follows the flight of the second; he is traced by another, and so a perpetual succession is kept up as long as a morsel of flesh remains over which to consort. I can conceive no other mode of accounting for the numbers of vultures which, in the course of a few hours, will gather over a carcase, when previously the horizon might have been scanned in vain for more than one, or at the

2. Nubian Vulture (*Otogyps Nubicus*). Rather scarce.

3. Egyptian Vulture (*Neophron Percnopterus*). Arab. "Rakhma."

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most two, in sight. Does not this theory explain the immense number of vultures which were congregated in the Crimea during the siege of Sebastopol, where before this bird had been comparatively scarce? May not this habit of watching the movements of their neighbours have collected the whole race from the Caucasus and Asia Minor to enjoy so unwonted an abundance? The Arabs believe that the vultures from all North Africa were gathered to feed on the Moscow infidel in the Crimea, and declare that during the war very few "Nissr" were to be seen in their accustomed haunts.

The griffon, however disgusting his food, is by no means an unamiable or disgusting bird. He is certainly cleanly in his habits, docile, and of remarkable intelligence. With his fellows he is good-tempered, and, voracious as he is, never grudges to share the feast with as many as choose to join him. There is none of the snarling and quarrelling of the canine tribe, nor any attempt to rob a weaker cousin of his portion, nor to devour a savoury morsel in secret; but each of the company amicably keeps his place, without attempting to eject his neighbour: yet it must be allowed that the pace at which he gobbles is a "caution" to an American table-d'hôte.

For some months we possessed two griffons taken from the nest, which at length arrived safely in England. They never attempted to desert us, differing in this respect from our lämmergeyers, but remained contentedly about the tents, or perched on the backs of the baggage-camels *en route*. They took a peculiar interest in taxidermy, scrutinizing, head on one side, the whole operation of bird-skinning, and perfectly aware of the moment when a morsel would be ready, exhibiting a more than ordinary excitement when they saw the skin drawn back over the head, and knew that the whole carcase would soon be cut off for them. One of these birds was of a desponding, querulous disposition; the other of a very different natural temperament, always contented and cheerful, a universal favourite in the camp, while his fellow received, I fear, many a sly kick for his complaints. They were able to fast for days, but, whenever such an opportunity as a camel's carcase presented itself, would be revenged on their Lent. I have seen our pet, "Musha Pacha," attack the entrails of a camel, and, as his crop became distended, sink upon his breast unable to stand, till at length, even this position requiring too much exertion, he lay on his side still eating, until overpowered and helpless he fell asleep. The strength of the vulture's stomach is equal to its capacity, for on one occasion one of our griffons devoured a half-pound jar of arsenical soap, with no further inconvenience than a violent fit of sickness, which continued for a few hours.

4. Lämmergeyer (*Gypaëtus Barbatus*). Arab. "Boulakhia." Only in the north of the Sahara habitually, where he seems rather unsociable. In his flight he is the most majestic of birds, sailing like a falcon; he will skim for miles without any perceptible motion of the wings, stilly gliding through space till lost to the telescope; then returning, he will turn the sharp corner of a cliff in the gorge, just bending his long wedge-shaped tail, one wing gently drawn in and as gently again expanded.

5. Golden Eagle (*Aquila Chrysaëtos*). Arab. "O'gab." Resorts to all the rocky ranges, and almost gregarious in the dayats. Never in the deserts or the inhabited oases.

6. Short-toed Eagle (*Circaëtus Gallicus*). Arab. "O'gab abiad." Preys on the reptiles of the plains.

7. Saker Falcon (*Falco Sacer*). Arab. "El Sakkr." Rare: in the Southern Sahara.

8. Lanner Falcon (*Falco Lanarius*). Arab. "Taïr el h'ohr," *i. e. the noble bird.*

9. Barbary Falcon (*Falco Barbarus*). Arab. "El Bourni." Confined to the mountain ranges. All these are much valued by the sheiks for the purposes of falconry.

10. Hobby (*Hypotriorchis Subbuteo*). Arab. "Ez Zebarbach."

11. Kestrel (*Tinnunculus Alaudarius*). Resorts to every part of the country except the plains. In the oases he preys on the palm-rat, which nestles in the crown of the date-trees, or he pursues the large beetles at dusk through the gardens. In the ravines he finds abundance of marmots (Gundi), and in the dayats I have often watched him pouncing upon the jerboas as they leave their holes.

12. Kite (*Milvus Regalis*). Arab. "Hadaya Hamra." In the dayats.

13. Egyptian Kite (*Milvus Ægyptius*). Arab. "Essaf." Sociable, fearless, and inquisitive, it readily approaches man, and hangs over the Arab camp, waiting for offal, and counting the poultry stock. Its nest, the marine-store shop of the desert, is decorated with whatever scraps of burnouses and coloured rags can be collected; and to these are added

on every surrounding branch the cast-off coats of serpents, large scraps of thin bark, and perhaps a bustard's wing.

14. Egyptian Great Owl (*Ascalaphia Savignii*).

15. Scops Owl (*Scops Zorca*). Arab. "Maroof."

16. Algerian Little Owl (*Athene Numida*). Arab. "Booma." It roosts in the palm-trees, and, for want of cliffs in the oases, breeds down the sides of the wells.

17. Raven (*Corvus Corax*). Arab. "Ilh'rabb." Universally present.

18. Jackdaw (*Corvus Monedula*). Very common in rocky gorges.

19. Chough (*Pyrrhocorax Graculus*). Arab. "Ogreeb Hamrayah." Scarce and only in the north.

20. Algerian Magpie (*Pica Mauritanica*). Arab. "El Agahg."

21. Starling (*Sturnus Vulgaris*). Arab. "Zerzour." Myriads of starlings visit the date forests in winter, and do incalculable damage to the ripe fruit. They are snared and destroyed by thousands, being prized for food. In spring not a straggler remains in Africa. They are accompanied occasionally by a few individuals of the

22. Black Starling (*Sturnus Unicolor*).

23. Spanish Sparrow (*Passer Salicarius*). Arab. "Zaouch." These birds swarm among the reeds in salt-marshes.

24. Cisalpine Sparrow (*Passer Italiæ*). Unlike the former, this sparrow is the constant companion of man, intruding, like our own, into the roofs and rafters of houses and sheds.

25. Desert Sparrow (*Corospiza Simplex*). A beautiful cream-coloured bird, only found, and that rarely, in the Southern Sahara.

26. Vinous Grosbeak (*Pyrrhula Githaginea*). On the Steppes.

27. Cirl Bunting (*Emberiza Cirlus*).

28. Meadow Bunting (*Emberiza Cia*).

29. House Bunting (*Fringillaria Saharæ*, Bp.); Arab. "Fisseough." Almost confined to the southern oases. It

is a great favourite from its lively, familiar habits, and its cheerful song, the tones of which reminded me of our English linnet. Few houses in the M'zab are without a pair or two of these little songsters in their courtyard, where the male, perched on the top of the balcony, continues his warbling from sunrise till nearly noon. Like our robin, the bunting would venture by degrees to hop across the court to our feet, as we sat at dinner, and pick up the fragments at our side.

30. Blue Thrush (*Monticola Cyanea*); Arab. "Tuttow Khifan."

31. Rock Thrush (*Monticola Saxatilis*).

32. Black Wheatear (*Dromolæa Leucura*); Arab. "Bou Haoud." The chats or wheatears are the tribe of all others most universally distributed in the Sahara, yet having *specifically* very narrow limits. They are, too, the only class of birds who have any distinctive or conspicuous colouring. The larks of various species, or the sand-grouse, may be on all sides, yet only a practised eye can detect a sign of life in the waste. But the lively chat is seen afar; his clear, bright colouring gleams in contrast with the universal brown around him. Conscious of his attractions, he attempts no concealment, but relies for safety on his watchful eye and rapid movements, and, above all, on the snug retreat which he always has open before him—his hole in the rocks, or his burrow in the sand. Wherever there are savage ravines, bare cliffs reflecting a burning glare on the hungry valley; rent chasms, fearful in the unspeakable stillness which pervades the transparent atmosphere around; gorges which strike the intruder with awe, as though life, vegetable or animal, had never dared to venture there before—even here may a pair of rock-chats of some species or other be detected. If a snap shot has been successful, the victim generally contrives to escape into some deep fissure to die, and it is impossible to recover the spoils.

33. White-rumped Rock Chat (*Dromolæa Leucopygia*, Brehm). *Nov. spec.* (Cab. Journ. of Orn., 1858, p. 66.)

34. White-headed Rock Chat (*Dromolœa Leucocephala*, Brehm). *Nov. spec.* (Br. Journ. of Orn., 1858, p. 62.)

35. Bush Chat (*Saxicola Philothamma*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 299.) An inhabitant of the dayats and plains, not, like the former, of the ravines.

36. Wheatear (*Saxicola Œnanthe*). In the north during winter.

37. Stapazine Chat (*Saxicola Stapazina*). On the plateaux in winter.

38. Eared Chat (*Saxicola Aurita*). On the plateaux in winter.

39. Mourning Chat (*Saxicola Lugens*, Licht.). A truly desert bird occurring in the Chaamba and Touareg country.

40. Desert Chat (*Saxicola Deserti*, Rüpp.). In the southern deserts.

41. Salt-loving Chat (*Saxicola Halophila*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 59.) Like the two preceding in habits and localities, but occurring only in the South-eastern and Tunisian Sahara.

42. Solitary Chat (*Saxicola Homochroa*, Tristram). *Nov. spec.* (Ibis, vol. i. pp. 59, 301.) Found in the sand-drifts of the deserts of Souf and Nefta.

43. Whinchat (*Pratincola Rubetra*). In winter in the oases.

44. Stonechat (*Pratincola Rubicola*). In winter in the oases.

45. Moussier's Warbler (*Ruticilla Moussieri*); Arab. "Zinzukh." Very rare in the north, but increasing in numbers as we proceed southwards, where it is found in every garden and palm-grove, as well as in the thickets of the dayats. It is the most richly-coloured bird of the country.

46. Robin (*Dandalus Rubecula*). In winter in the oases.

47. Black Cap (*Curruca Atricapilla*). ,,

48. Garden Warbler (*Curruca Hortensis*). ,,

49. Orphean Warbler (*Curruca Orphea*). ,,

50. Lesser Whitethroat (*Sylvia Curruca*). ,,

51. Whitethroat (*Sylvia Cinerea*). ,,

52. Spectacled Warbler (*Sylvia Conspicillata*). The

common and characteristic warbler of the country. It resorts to the open grounds, haunting the small bushes and *statices*, living indifferently on the salt marshes, or on the more exposed and bleak plateaux, but never in the oases or dayats.

53. Desert Warbler (*Sylvia Deserticola*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 417.) Found only in the southern desert.

54. Dartford Warbler (*Melizophilus Provincialis*). In winter, in the dayats only.

55. Willow Wren (*Phylloscopus Trochilus*); Arab. "Millil."

56. Chiffchaff (*Phylloscopus Rufus*).

57. Bonelli's Warbler (*Phylloscopus Bonellii*). In oases during winter.

58. Cetti's Warbler (*Cettia Sericea*).

59. Melodious Willow Wren (*Hippolaïs Polyglotta*).

60. Pallid Warbler (*Hippolaïs Pallida*, Gerbe).

61. Great Sedge Warbler (*Calamoherpe Turdoïdes*).

62. Savi's Warbler (*Lusciniopsis Savii*).

These five resort in winter to all the sedges and marshes about Waregla, N'goussa, and the Wed R'hir.

63. Rufous Sedge Warbler (*Aëdon Galactodes*). In oases.

64. Desert Fantail (*Drymoïca Striaticeps*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 419.) Discovered at the salt lake of Aïn Bahrdad, near Hadjira.

65. Numidian Malurus (*Crateropus Fulvus*, Desf.); Arab. "Erbib el Hadjel," *i.e.* adopted son of the partridge. Numerous wherever there are trees either wild or cultivated, and as noisy and garrulous as the starling, which it much resembles in its manner of flight. Often secreting themselves by threes and fours in a shrub, these birds remain closely concealed till, at the pursuer's near approach, they silently steal away close to the ground to the next bush. Invariably do they alight at its foot, and then noiselessly creep up to the very top, descending in line on the other side, excepting one sentinel, who remains on the topmost bough to give the alarm of danger. Often as I have watched them, this precaution was never omitted.

66. White Wagtail (*Motacilla Alba*); Arab. "M'sissi." In winter.

67. Yellow Wagtail (*Budytes Flava*). In winter only.

68. Tawny Pipit (*Anthus Campestris*). On the Hauts Plateaux,—not seen further south.

69. Meadow Pipit (*Anthus Pratensis*). Winter visitant.

70. Tree Pipit (*Anthus Arboreus*). Winter visitant.

71. Desert Horned Lark (*Otocorys Bilopha*). On desert plains.

72. Short-toed Lark (*Calandrella Brachydactyla*). On the Hauts Plateaux.

73. Reboud's Lark (*Calandrella Reboudia*, Loche). *Nov. spec.* (Loche, Cat. Ois., p. 83.) In the deserts.

74. Desert Lark (*Ammomanes Isabellina*). On desert sandy plains.

75. Pale Desert Lark (*Ammomanes Pallida*). Only in the southern desert sands, where it takes the place of the former.

76. Little Desert Lark (*Ammomanes Regulus*, Bp.). Very rare. Found in the Chaamba country and the Touareg deserts.

77. Cavaignac's Lark (*Rhamphocoris Clot-bey*). This grotesque and singular-looking bird I found only on the mountain-sides to the south of El Aghouat.

78. Calandra Lark (*Melanocorypha Calandra*). Only in the north.

79. Crested Lark (*Galerida Cristata*); Arab. "Goubah." In the north.

80. Abyssinian Lark (*Galerida Abyssinica*). The commonest lark of the plains in the Central Sahara.

81. Isabelline Crested Lark (*Galerida Isabellina*). A very distinct species, and confined to the most desolate regions.

82. Sand Lark (*Galerida Arenicola*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 426.) Only in the extreme east and the Tunisian Sahara.

83. Long-billed Crested Lark (*Galerida Macrochynca*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 426.) The largest of all

the larks. Found along the northern edge of the Sahara from Morocco to Tripoli.

84. Dupont's Lark (*Certhilauda Duponti*). Very rare, and only found in the ravines of the Wed N'ça.

85. Bifasciated Lark (*Certhilauda Desertorum*). Universally but sparingly distributed in the deserts.

86. Salvin's Lark (*Certhilauda Salvini*, Tristram). *Nov. spec.* (Ibis, vol. i. p. 428.) A smaller and more slender bird than the last, only occurring in the southern and south-eastern districts.

87. Pallid Shrike (*Lanius Dealbatus*); Arab. "Boorass." Very abundant, and permanently resident in the dayats and oases, feeding on large scarabæi, and sometimes on small birds.

88. Chimney Swallow (*Hirundo Rustica*). It was pleasant, along with the perpetual summer, to enjoy the constant presence of our home friend the swallow, of which a few pairs remained throughout the year wherever there are marshes or wells to provide their insect food. Still I presume that only the younger or weaker birds remain, for the Arabs stated that for one swallow in winter they have twenty in summer, and that the greater number usually retire about the end of November, returning in February. In the beginning of that month we saw myriads of swallows pursuing their northward flight. The natives are perfectly familiar with the fact of the swallow's migration, as they say they go to visit Timbuctoo, the El Dorado of Arab and swallow.

89. Rock Swallow (*Cotyle Rupestris*). Rare.

90. Sand Martin (*Cotyle Riparia*). On passage only.

91. House Martin (*Chelidon Urbica*). Exactly the same remarks will apply to this bird as to the Chimney Swallow.

92. Cuckoo ? (*Cuculus* ?). Near Tuggurt. A small African species, which I could not identify.

93. Bee-eater (*Merops Apiaster*); Arab. "Leemoon." On passage.

94. Hoopoe (*Upupa Epops*); Arab. "Thibeeb." Great numbers of hoopoes resort to the M'zab cities and those of

other oases in winter, where they strut about the court-yards and round the tents with the familiarity of barn-door fowls. The natives have a superstitious veneration for this bird, and its magical properties enter largely into the arcana of the Arab "hakeem."

95. White-bellied Swift (*Cypselus Melba*).

96. Common Swift (*Cypselus Apus*). Both these resort to the cliffs and mosque-towers for nidification; but, unlike the swallows, do not remain through the winter, retiring in November.

97. Rock Dove (*Columba Livia*); Arab. "Goomri." Common.

98. Stock Dove (*Columba Œnas*). In wooded districts.

99. Egyptian Turtle Dove (*Turtur Ægyptiacus*); Arab "Hammam." It is singular that, while the common turtle-dove, so abundant throughout Algeria in summer, is never seen except on passage in the Sahara, the palm-dove, as this species is well named, remains throughout the year, but never advances further north than the date-tree, from which it is inseparable. Among these palms it swarms to an incredible extent. Whenever we rested at an oasis it supplied us abundantly with our sole animal food. It was unnecessary to do more than take one's stand in a garden, and fire and load till the bag was filled.

100. Common Sand Grouse (*Pterocles Arenarius*); Arab. "El Koudhre." Less abundant than the following species, but universally distributed except in the extreme south, where it gives place to Pterocles Senegalus. There is much of the plover character in the flight and manner of this tribe. When alarmed they crouch closely to the ground, carefully concealing their dark breast, and do not take wing till approached very closely. They feed chiefly towards sunset, when their call-note, resembling that of a partridge, may be heard incessantly till after dark. They never lay more or less than three eggs. Their flesh is extremely white, but, probably from their food, is very poor and dry, without flavour, and we could discover no mode of cooking by which it could be rendered palatable.

101. Pintailed Sand Grouse (*Pterocles Alchata*); Arab. "El Guett'ha." Abounds in the central and southern districts, and in winter packs in large flocks. There is scarcely a bird in nature which surpasses the male Pterocles Alchata in softness of colouring or delicacy of pencilling. Alas that such handsome plumage should clothe such *very* dry bones!

102. Spotted Sand Grouse (*Pterocles Coronatus*). Supplants the common species in the southern deserts.

103. Senegal Sand Grouse (*Pterocles Senegalus*). Also confined to the extreme south. There is a fifth species of sandgrouse which I have seen near Waregla, but was unable to procure.

104. Barbary Partridge (*Caccabis Petrosa*); Arab. "El Hadjel." I once obtained five birds from a covey in the Wed N'ça, the only partridges I ever saw in the Sahara. They were much smaller than the partridge of Algeria, and the plumage of a paler hue; but no specific difference could be observed.

105. Quail (*Coturnix Communis*); Arab. "Mell'houa." Occurs on passage in spring.

106. The Ostrich (*Struthio Camelus*); Arab. "N'hâma." On the desert plains. See p. 117.

107. Little Bustard (*Otis Tetrax*); Arab. "Rhaâhd." Only in the north, on the verge of cultivation.

108. Ruffed Bustard (*Houbara Undulata*); Arab. "Houbara." Chiefly in the central Sahara, most abundant near dayats.

109. Norfolk Plover (*Œdicnemus Crepitans*); Arab. "Kheeroona." On the Hauts Plateaux.

110. Crane (*Grus Cinerea*); Arab. "Rhernoug." On passage.

111. Numidian Crane (*Anthropoïdes Virgo*). In salt marshes.

112. White Stork (*Ciconia Alba*); Arab. "Belerdj." Builds on the tops of the mosque-towers in the M'zab country, and is respected and cherished as a sacred bird. Its food there consists of the lizards of the Desert. But

here too "the stork knoweth her appointed times," and retires in November.

113. Common Heron (*Ardea Cinerea*); Arab. "Bou Auk."

114. Purple Heron (*Ardea Purpurea*).

115. White Egret (*Herodias Alba*); Arab. "Aïzouch."

116. Lesser Egret (*Herodias Garzetta*).

117. Buff-Backed Heron (*Bubulcus Ibis*).

118. Squacco Heron (*Buphus Comatus*).

119. Little Bittern (*Ardetta Minuta*).

120. Bittern (*Botaurus Stellaris*).

121. Night Heron (*Nycticorax Griseus*).

All these birds of the Heron tribe are to be met with occasionally in the salt marshes and ditches of the various oases, especially at Waregla and in the vast Wed R'hir.

122. Flamingo (*Phœnicopterus Antiquorum*); Arab. "Shabroose." A large flock were seen in the open chott of Waregla.

123. Bald Ibis (*Geronticus Comatus*). Found in the rocky ridges near Bou Guizoun. Unlike the rest of its family, it resorts only to the most arid and desolate mountain ranges, where it consorts with the falcon and the raven. Its food, as I ascertained, consists of lizards and serpents; and it breeds in holes in inaccessible precipices.

124. Glossy Ibis (*Falcinellus Igneus*); Arab. "Maâzat el Mâ" (Devil crow). Rare. Seen at Tuggurt along with little egrets.

125. Dotterell (*Eudromias Morinellus*); Arab. "El Mohr." In vast flocks on plains where vegetation occurs. Only in winter.

126. Kentish Plover (*Ægialites Cantianus*). Universally present in all the chotts and sebkhas.

127. Little Ring Plover (*Ægialites Minor*). In the same localities, but not so common.

128. Cream-coloured Courser (*Cursorius Gallicus*); Arab. "Song el Ibel," *i. e.* "Camel-pricker." On desert plains. Less abundant in winter than in summer.

129. Lapwing (*Vanellus Cristatus*); Arab. "Bibeth." Rare, and only found in winter.

130. Collared Pratincole (*Glareola Pratincola*). Extremely abundant near marshes or lakes.

131. Black-winged Stilt (*Himantopus Melanopterus*). Resorts to the ditches of the oases in winter.

132. Avocet (*Recurvirostra Avocetta*). Tuggurt in January.

133. Snipe (*Gallinago Media*). In ditches and marshes everywhere in winter.

134. Jack Snipe (*Gallinago Gallinula*). One shot in the Wed R'hir.

135. Ruff (*Machetes Pugnax*). Tuggurt.

136. Dunlin (*Tringa Alpina*). Common by salt lakes in winter.

137. Temmink's Stint (*Tringa Temminkii*).

138. Red Shank (*Gambetta Calidris*).

139. Green Sandpiper (*Totanus Ochropus*).

140. Wood Sandpiper (*Totanus Glareola*).

141. Common Sandpiper (*Totanus Hypoleucos*).

142. Slender-billed Curlew (*Numenius Tenuirostris*).

143. Water Rail (*Rallus Aquaticus*).

144. Baillon's Crane (*Gallinula Bailloni*).

145. Great Purple Gallinule (*Porphyrio Hyacinthus*).

146. Coot (*Fulica Atra*); Arab. "Ghorra."

All these waders occur in winter in salt marshes and lakes. The Green Sandpiper is especially numerous.

147. Bean Goose (*Anser Segetum*). One shot at Temaçin.

148. Ruddy Shieldrake (*Casarka Rutila*). Hundreds of these birds resort to the small pieces of open water at Bou Guizoun, Tuggurt, &c. At the former place I captured some half-dozen nestlings of various ages, some of them scarcely more than a day old; yet the only place where they could possibly have bred, and where we had procured a nest three days previously, was in a range of cliffs more than twelve miles distant.

149. Common Shieldrake (*Tadorna Vulpanser*). Scarce.

150. Wild Duck (*Anas Boschas*); Arab. "Brack."

151. Gadwall (*Anas Strepera*).
152. Shoveller (*Rhynchaspis Clypeata*).
153. Teal (*Querquedula Crecca*).
154. Pintail (*Dafila Acuta*).
155. Widgeon (*Mareca Penelope*).
156. Tufted Duck (*Fuligula Cristata*).
157. Pochard (*Fuligula Ferina*).
158. White-eyed Duck (*Nyroca Leucophthalma*).
159. Red-crested Whistling Duck (*Callichen Rufina*).
160. White-headed Duck (*Erismatura Mersa*).

All these ducks are more or less frequent in the lakes and salt marshes. I have picked up a wild duck dead of starvation in the centre of the Souafa Desert. The Tufted and White-eyed are the most common species in the Wed R'hir.

161. Gull-billed Tern (*Gelochelidon Anglica*). At the Zahrez.
162. Least Tern (*Sterna Minuta*).
163. Black Tern (*Hydrochelidon Nigra*).
164. White-winged Black Tern (*Hydrochelidon Leucoptera*).
165. Whiskered Tern (*Hydrochelidon Hybrida*).

The Terns were only found in the Western Sahara, and chiefly on the great lakes of the Zahrez—never further south.

166. Great-crested Grebe (*Podiceps Cristatus*).
167. Eared Grebe (*Podiceps Auritus*).
168. Little Grebe (*Podiceps Minor*). In the northern Sahara.

None of the Grebes were observed in the south, even in the most suitable localities.

N.B.—I have only included in this catalogue the birds obtained by myself. It will be noted that most of the rarest and most interesting forms occurred only in the extreme south, where, from the danger of wandering far from camp, and from the rapidity with which we were often compelled to travel, many species may have been overlooked. To naturalize perseveringly in a desert is no easy task, especially when at a distance from water, for the delay of

a day may prove death to a whole caravan. The farther we penetrated south and east, Nubian and Abyssinian types more frequently occurred, and the scarcer the European forms became. After the information collected by Heuglin, Rüppell, and others on the ornithology of Eastern Africa, we can scarcely anticipate the discovery of many new species in the still unexplored Touareg country. But the western limits of the Nubian fauna is a problem still unsolved; and for its solution we need a careful observation of the birds on the route from Tripoli to the Soudan, *viâ* G'hadames. I believe it will be found that at Waregla we bid adieu to European species, except as winter visitants, and enter upon the Ethiopian zone. The Sahara is the debatable land between the two, and its southern portion is adapted for the existence of but few of our European forms.

APPENDIX VI.

Reptiles of the Sahara.

Order, Testudinata.

Testudo Mydas, Cuv. (common tortoise).
Testudo Græca, L. (Greek tortoise).
Cistuda Europœa, Gray (European box terrapin, or water tortoise).
Emys Vulgaris, L. (common terrapin, or mud tortoise).

Order, Sauri.

Monitor Niloticus, Geoff. (Nilotic monitor).
Monitor ? Probably M. Ocellatus, Rüpp., found in Kordofan.
**Psammosaurus Scincus*, Licht. (grey ouran).
Acanthodactylus Savignyi, And. (Savigny's lizard).
,, *Scutellatus*, And. (shielded lizard).
* ,, *Velox*, Dugès (variable lizard).
Eremias Pardalis, Licht. (panther lizard).
Algyra Barbarica, Cuv. (common algyra).
Eremias Guthelata, Licht. (spotted lizard).
Tarentola Mauritanica, L. (Mauritanian gecko).
,, *Ægyptiaca?* Cuv. (annulated gecko). Not clearly identified, and possibly T. Delalandii, Dum. Bibr., which has been found in West Africa.
**Ascolobates Stenodactylus*, Licht. (sheath-claw gecko).
Chamæleo Vulgaris, L. (common chameleon).
Stellio Vulgaris? Latr. (common stellio).
**Heteromeles Mauritanicus*, D. B.

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* Not found by myself, but given on the authority of trustworthy local naturalists.

Uromastix Spinipes, Geoff.; the dabb (common uromastyx).
Agama Colonorum, Licht.
,, *Ægyptiacus*, Licht.?
Lacerta Ocellata, L. "H'Ardoun," Arab.
Zootoca Deserti, Gthr. *Nov. spec.* See Zool. Proc. London, 1859, p. 470.
Scincus Officinalis, L. (common skink). "H'out el ber," *i. e.* land fish, Arab.
Gongylus Ocellatus, Schr. (eyed galley wasp).
Seps Tridactylus, Cuv. (three-toed seps).

The following also, which are common in the Tell, probably occur in the Sahara, but I am unable to state their southern limit.

Lacerta Perspicillata, Dum. Bibr.
Acanthodactylus Vellii, Gray.
,, *Lineato-maculatus*, Dum. Bibr.
,, *Inornatus*, Gray.
Ophiomorus Miliaris, Schmid.
Gymnodactylus Mauritanicus, Dum. Bibr.
Stenodactylus Mauritanicus, Guich.

Order, OPHIDII.

Echidna Arietans, Merr.
,, ,, var. *Mauritanica*. Very common.
Echis Arenicola, Boie.
Cerastes Hasselquistii, Wagl.
Naia Haje?
Coronella Cucullata, Dum. Bibr. Very common.
**Tropidonotus Viperinus*, Schleg.
,, ,, var. *Tessellata*.
,, ,, var. *Chersoïdes*.
Coclopeltis Lacertina, Wagl.

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* Under the care of the able keeper of the London Zoological Gardens, Tropidonotus Viperinus has recently bred there, and eight young ones have been hatched and reared.

Lamenis Hippocrepis, L.
„ *Cliffordii*, Schleg.
Water snake, two species. Very common.

Order, BATRACHIA.

Rana Esculenta, L. (green frog).
Hyla Arborea, L. (tree frog). In oases only.
Bufo Viridis, L.
„ *Calamita*, L. On the Dj. Sahari.
„ *Pantherinus*, Boie.
Salamandra ? Tuggurt.

NOTE.—The above list is extremely meagre, particularly as respects the serpents. No class of animals are more difficult to capture and to stow away whilst travelling; while the terror of the deadly cerastes, "the fiery flying serpent," effectually precludes any assistance in the pursuit of reptiles from the natives.

The writer on several occasions met with very large snakes, probably rock snakes, which he had no means of preserving or identifying.

FISH OF THE SAHARA.

Cyprinodon Dispar, L. Hot springs near Biskra.
GENUS NOVUM, *Haligenes Tristrami*, Günther. *Spec. nov.* Salt lake near Tuggurt. Described and figured Zool. Proc. 1859, p. 471.

APPENDIX VII.

CATALOGUE OF THE MOLLUSCA OF THE SAHARA.

THE shells of a region so arid and bare are few and far between. Most of the species we collected are common to the South of Europe, and the others bear a strong affinity to their more northerly congeners, being formed on the same type, without exception, as those of the Lusitanian region. All the species identical with the rest of the Lusitanian group may be recognised as local varieties or races, being invariably larger, much thicker in the shell to prevent evaporation in so dry a climate, and generally blanched or with very faint traces of colour.

MOLLUSCA.

Helix Vermiculata, Drap.
" " Variety very large and glossy. M'zab.
" " Variety with elevated spire, very large and white. Waregla.
" Cirtæ, Terver.
" Massilia, Pfr. Larger than the last, and without stripes.
" Juilleti, Terver.
" Candidissima, Drap. Twice the size of European specimens. The most common shell of the Sahara.
" Cerea, Tristram. Larger than the latter, and with a peculiarly glossy shell. Waregla.
" Variabilis, Drap. Very large.
" Cespitum, Drap. Large and white variety.

Helix Arida, Tristram. White, with a jet-black apex, and elevated spire; in other respects resembling Helix Variabilis. Desert of Souf.

„ Tristrami, Pfr.

„ Boissyi, Terver.

„ Rozeti, Mich.

Bulimus Pupa, Fer.

„ Milerianus, Raymond.

„ Tunetanus, Spratt.

„ Harrisii, Reeve.

„ Salvini, Tristram.

All the Bulimi are confined to the rocky gorges south of the Atlas, in the crevices of which there is constant vegetation.

Achatina Folliculus, Mich.

„ Eremophila, Bourginet.

„ *spec. nov.*

Limnæus Palustris, Drap. At Aïn el Ibel.

„ Minuta, Drap. Laghouat.

Clausilia Tristrami, Pfr. This very large and delicately coloured purple shell we found only in one single rocky gorge near Kef.

Succinia Putris, var. (?), L. Tuggurt.

„ Amphibia, Drap. Wed R'hir.

Paludina Idria, Fer. Bou Guizoun.

„ Nana, Terv. Near Boghar.

„ Elongata, Tristram. Tuggurt.

„ Halophila, Tristram. Tuggurt.

Melania Tuberculata, L. (?) variety. Much larger than the Egyptian and Indian specimens, and with bands of green and pale purple. Abundant at Tuggurt.

Melanopsis Buccinoïdes, Fer. Cheliff.

„ Prærosa, L. Wed R'hir.

„ Sulcata, Tristram. Salt lake near Waregla. A distinct species, resembling one found in the Jordan.

Conovulus, *spec. nov.* Tuggurt.

APPENDIX VIII.

CATALOGUE OF PLANTS COLLECTED IN THE ALGERIAN SAHARA, ARRANGED AFTER THE NATURAL SYSTEM.

N.B.—FOR the names of the greater part of these plants I am indebted to the kind assistance of Dr. Reboud, of the Staff of the Imperial Army, who corrected many mistakes and supplied me with many species which had escaped my observation, especially those of the mountainous districts.

I have also to tender my thanks to M. Jamin of Biskra, for much valuable information, and for notes of many of the plants of the north-eastern Sahara.

DICOTYLEDONS. Family, RANUNCULACEÆ.

Clematis Flammula, L. Mountain districts.
Anemone Palmata, L. Mountain districts.
Adonis Microcarpa, Reboud. Salt plains.
,, Æstivalis, L.; var. Dentata, Cosson. Mountains.
,, Autumnalis, Desf., non L. Plains.
Ceratocephalus Falcatus, Coss. Deserts.
Ranunculus Gramineus, var. Lazulæfolius, Boiss. Mountains.
,, Macrophyllus, Desf. Mountains.
,, Flabellatus, Desf. Biskra.
,, Orientalis, L. Mountain streams.
,, Macrophyllus, Desf. Mountain streams.
,, Rectirostris, Coss. Mountains.
,, Millefoliatus, Desf. Mountains.
Nigella Arvensis, L. Plains.
,, Damascena, L. Oases.
,, Hispanica, L. Plains.

Reaumuria Vermiculata, Desf. Desert of Souf.
Delphinium Junceum, D C. Mountains.
,, Orientale, L. Plains.
,, Pubescens, D C. Mountains.
,, Obcordatum, D C. Salt plains.
Thalictrum Saxatile, Lam. Hills in the north.

Family, Papaveraceæ.

Papaver Hybridum, L. Dj. Sahari.
Rœmeria Hybrida, D C. Mountains.
Glaucium Corniculatum, L. Plains.
Hypecoüm Pendulum, L.
,, Procumbens, var. Glaucescens. Sandy deserts.

Family, Fumariaceæ.

Fumaria Micrantha, Lm. Desert hills.
,, Numidica, Coss. Deserts.
,, Parviflora, Lm., var. Macrocarpa. Mountains.
,, Spicata, L. Mountains.
,, Crassifolia, Desf. El Kantara.
Corydalis (*spec. nov. ?*). M'zab, in ravines.

Family, Cruciformæ.

Matthiola Lunata, D C. Plains.
,, Livida, D C. Plains.
,, Tristis, Dr. Reb. Plains.
Lonchophora Caprimontiana, Reb. Desert.
Cheiranthus Semperflorens, Schousboë. Mountains.
,, Farsetia, Desf. Rocks.
Nasturtium Coronopifolium, Reb. Plains.
,, Officinale, L. Desert.
Notoceras Canariense, R. Br. Desert.
Arabis Auriculata, Lm. Hills.
,, (*spec. nov. ?*), fructibus pubescentibus, Reb. Djelfa.
,, Parvula, Dufour. Mountains.
Savignya Ægyptiaca. D C. Desert.

Farsetia Linearis, Coss. Desert.
,, Ovalis, Boiss. Deserts.
Alyssum Sentigerum, D. R. Desert.
,, Atlanticum, Desf. Desert sands.
,, Granatense, Boiss. Hauts Plateaux.
,, Serpyllifolium, Desf. Hauts Plateaux.
,, (*spec. nov. ?*). Rocky desert.
,, Maritimum, Lm. Hauts Plateaux.
,, Campestre, L. El Kantara.
Meniscus Linifolium, Desf. Desert.
Clypeola Cyclodontea, Desf. Desert.
Draba Verna, L. Plains.
Thlaspi Perfoliatum, L. Hauts Plateaux.
Hutchinsia Procumbens, D C. Salt plains.
,, Petræa, D C. Hauts Plateaux.
Iberis Pectinata, Boiss. Hauts Plateaux.
,, (*spec. nov. ?*). Desert plains.
,, (*spec. nov. ?*). Desert plains.
Biscutella Auriculata, L. Plains.
,, Napifolia, Coss. Dayats.
,, Raphanifolia, Poir. Plains.
,, Lævigata, L. Plains.
Molcomia Ægyptiaca, Sprengel. Wed R'hir.
,, Parviflora, D C. Deserts.
Sisymbrium Cinereum, Desf. Deserts.
,, Cressifolium, Car. Hauts Plateaux.
,, Irio, L. M'zab, Guerrara.
,, Ceratophyllum, Desf. Souf.
,, Pendulum, Desf. Desert.
,, Coronopifolium Desf. Salt plains.
,, Erysimoïdes, Desf. Desert.
,, Runcinatum, Lagat. Hauts Plateaux.
,, Torulosum, Desf. Hauts Plateaux.
Erysimum Kunzeanum, Boiss. Hauts Plateaux.
,, Orientale, R. Br. Desert.
Cannabis Sativa, L. Oases.
Senebiera Lepidoïdes, Coss. M'zab Desert.
Hussonia Ægiceros, Coss. Desert.

Brassica Dimorpha, Coss. Hauts Plateaux.
,, Lyrata, Desf. Desert.
Lepidium Subulatum, L. Salt plains.
,, Procumbens, L. Salt plains.
Sinapis Arvensis, L. Djelfa.
,, Bipinnata, Desf. Desert.
Moricandia Suffruticosa, Coss. Desert.
,, Teretefolia, D C. Salt plains.
Diplotaxis Virgata, D C. Hauts Plateaux.
,, Pendula, D C. M'zab Desert.
Erucastrum Leucanthum, Coss. Hauts Plateaux.
,, Obtusangulum, Rehb. Hauts Plateaux.
,, ,, var. exauriculatum, Coss. Djelfa.
Eruca Sativa, Lm.; var. stenocarpa. Djelfa.
*GENUS NOVUM, Erucariæ affinis, Reboud. Desert south of Laghouat.
Henophyton Deserti, Coss. M'zab Desert.
Vella Annua, L. Desert.
Maricaria Prostrata Desf. Desert sands.
Enarthrocarpus Clavatus, Godf. Desert.
Cossonia Africana, Reboud (floribus luteis). Hauts Plateaux.

N.B.—The cruciform plants, as they are amongst the most numerous, so they are amongst the most attractive of the few floral beauties of the Sahara. Their flowers afford great varieties of colour, pink and purple predominating. I have sometimes met with a large purple patch near the dayats as brilliant as any bed of purple stocks in an English garden. They are moreover especially valuable to the desert traveller as fodder for the horses and camels.

Family, CAPPARIDEÆ.

Cleome Arabica, Desf. Desert.
Capparis Ovata, Desf. M'zab. Arab. "Lasaf."*

* The caper (here, as in the East, called "lasaf") grows out of the naked cliffs of the Wed M'zab, as in Wadys of Arabia, its bright-green

Family, Cistineæ.

Cistus Villosus, L. Hauts Plateaux.
„ Libanotis, Desf. Mountains.
„ Salvifolius, L. Salt rocks.
„ Monspeliensis, L. Hauts Plateaux.
Helianthemum Ægyptiacum, L. Plains.
„ Ciliatum, Desf. Desert. Arab. "Rega."
„ Ellipticum, Desf. Plains.
„ Glaucum, Desf. Hauts Plateaux.
„ Glutinosum, Pers. Hauts Plateaux.
„ Hirtum, Pers. Hauts Plateaux.
„ Guttatum, L. Plains.
„ Helianthemoïdes, Desf. Mountains.
„ Lavandulæfolium, Lam. Hauts Plateaux.
„ Niloticum, L. Plains.
„ Papillare, Boiss. Plains.
„ Pilosum, Pers. Plains.
„ Polyanthos, Desf. Hauts Plateaux.
„ Salicifolium, L. Plains.
„ Sessiliflorum, Desf. Desert. Arab. "Reguig."
„ Serratum, Cav. Hauts Plateaux.
„ Tenellum, Pers. Dayats.

Family, Resedaceæ.

Reseda Alba, L. Hauts Plateaux.
„ Durieæana, Gr. Hauts Plateaux.
„ Eremophylla, Boiss. M'zab Desert.
„ Stricta, Pers. Hauts Plateaux.
„ Odorata, L. (?). Plains.

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foliage affording a striking contrast with the glare of the limestone rocks around. In the Wed M'zab the caper is generally the only green leaf visible, the bush starting out from a chink in the cliff, where no trace of either moisture or soil can be detected. He who has seen the "hyssop" of Scripture on its native rocks can well appreciate the use of the green caper as an emblem in the typical purifications of the law of Moses.—See Stanley, 'Sinai and Palestine,' p. 22.

Family, VIOLARIÆ.

Viola Odorata, L. Oases.
„ Tricolor, L., var. arvensis.

Family, POLYGALEÆ.

Polygala Saxatilis, Desf. Mountains.

Family, FRANKENIACEÆ.

Frankenia Pulverulenta, L. Desert.
„ Thymifolia, Desf. Hauts Plateaux.

Family, CARYOPHYLLEÆ.

Gypsophyla Compressa, Desf. Hauts Plateaux.
Dianthus Serrulatus, Desf. Desert.
„ Sylvestris, Wulf. Djelfa.
„ Virgineus, L. Hauts Plateaux.
Silene Bipartita, Desf.; var. pteroplura, Coss. Plains.
„ Æolica, Reboud. Hauts Plateaux.
„ Conica, L. Hauts Plateaux.
„ Nocturna, L. Plains.
„ Lusitanica, Desf. Oases.
„ Muscipula, L. Hills.
„ Nicaensis, Coss. Desert.
„ Rubella, L. Hauts Plateaux.
„ Arenaroïdes, Desf. Plains.
Lychnis Macrocarpa, Boiss. Hauts Plateaux.
Velezia Rigida L. Hauts Plateaux.
Buffonia Tenuifolia, L. Hauts Plateaux.
Holosteum Umbellatum, L. Plains.
Spergula Arvensis, L. Plains.
„ Diandria, De Neldr. Hauts Plateaux.
„ Media, Pers. Hauts Plateaux.
Rhodalium Procumbens. Gay. Hauts Plateaux.

Family, LINEÆ.

Linum Perenne, L. Hauts Plateaux.
„ Strictum, L. Hauts Plateaux.
„ Suffruticosum, L. Hauts Plateaux.

Family, MALVACEÆ.

Malva Ægyptiaca, L. Plains.
„ Sylvestris, L. Hauts Plateaux.

Family, GERANIACEÆ.

Geranium Robertianum, L. Hauts Plateaux.
„ Sylvaticum, L. Foot of the Atlas.
Erodium Tordylioïdes, Desf. Rocks.
„ Laciniatum, Desf. Desert.
„ Guttatum, Desf. Dayats.
„ Hymenoïdes, Coss. Hauts Plateaux.
„ Arborescens, Desf. Dj. Chechar.

Family, HYPERICINEÆ.

Hypericum Tomentosum, L. By streams.
„ Perforatum, L. Plains.

Family, ZYGOPHYLLEÆ.

Tribulus Terrestris, L. Dayats.
Fagonia Cretica, L. Deserts.
„ Sinaïca, Boisner. Desert.
„ Arabica, L. Desert.

Family, RUTACEÆ.

Ruta Angustifolia, Pers. Hauts Plateaux.
„ Tenuifolia, Desf. Mountains.
Aplophyllum Tuberculatum, Reboud. Desert. Waregla.
„ Linifolium, Pers. Desert.
Peganum Harmala, L. M'zab Desert.

Family, FRANGULACEÆ.

Zizyphus Spina Christi, L. Deserts. Arab. "Sedra."
„ Sativa, L. Dayats.
„ Lotus, Lam. Dayats.

Family, TEREBINTHIACEÆ.

Pistachia Atlantica, Desf. Everywhere.
„ Lentiscus, L. On the hills.

Pistachia Terebinthus, L. Hauts Plateaux. Arab. "Betoum."
Rhus Dioïca, Willd. Desert.
„ Coriaria, L. Hauts Plateaux.

Family, Leguminosæ.

Retama Duriæi, Spach. Desert.
Genista Pilosa (?). Dayats.
„ Saharæ, Reboud. Deserts.
„ Sphærocarpa, Lam. Desert Weds.
„ (*nov. spec.?*). Wed N'ça.
„ Tricuspidata, Desf. Hauts Plateaux.
Cytisus Candicans, L. Ravines.
„ Triflorus, L'Hérit. Ravines.
Ægyrolobium Linnæum, Reb. Desert.
„ Uniflorum, Reb. Desert.
Ononis Angustissima, Lam. Desert.
„ Laxiflora, Desf. Hauts Plateaux.
„ Cherleri, Desf. Hauts Plateaux.
„ Columnæ, Desf. Hauts Plateaux.
„ Ornithopoïdes, L. Plains.
„ Serrata, Forsk. Desert.
„ Hispida, L. (?). Plains.
Anthyllis Sericea, Lag. M'zab Desert.
„ Tragocanthoïdes, Desf. Desert.
„ Vulneraria, L., var. Hauts Plateaux.
Lupinus Luteus, L. Plains.
„ Hirsutus, L. Plains.
Medicago Arabica, Schk. Plains.
„ Apiculata, Willd., var. senticulata. Hauts Plateaux.
„ Helix, W. Dayats.
„ Laciniata, All. Hauts Plateaux.
„ Muricata, L. Plains.
„ Orbicularis, All. Plains.
„ Secundiflora, Reboud. Dayats.
„ Tribuloïdes, Lam. Hauts Plateaux.
„ Minima, Lam. Plains.

Medicago Minima, var. longispina. Dayats.
„ Intertexta, W. Deserts.
Trifolium Resupinatum, L. Plains.
„ Procumbens, L. Plains.
„ *spec. nov.* (?) Djelfa.
Trigonella Monspeliaca, L. Hauts Plateaux.
„ Polyovata, L. Hauts Plateaux.
„ Prostrata, L. Hauts Plateaux.
Melilotus Neapolitana, Ten. Djelfa.
„ Sulcata, Desf. On the hills.
„ Parviflora, Desf. Desert.
Dorycnium Suffruticosum, Vill. Desert plains.
„ Rectum, D C. Salt marshes.
Astragalus Cruciatus, Lam. Desert.
„ Glaux, L. Oases.
„ Gombo, Coss. Desert.
„ Geniculatus, Desf. Hauts Plateaux.
„ Incurvus, Desf. Desert rocks.
„ Lanigerus, Desf. Desert.
„ Leptophyllus, Desf. Mountains.
„ Monspessulanus, L. Hauts Plateaux.
„ Nummularius, Desf. Desert plains.
„ Pentaglottis, L. Hauts Plateaux.
„ Peregrinus, Va. Desert.
„ Sesameus, L. Barren plains.
„ Stella, L. Desert.
„ Tenuifolius, Desf. Hauts Plateaux.
„ Tragacantha, L. Desert.
Coronilla Juncea, L. Plains.
„ Minima, L. Hauts Plateaux.
„ Pentaphylla, Desf. Hauts Plateaux.
Anthrolobium Scorpioïdes, D C. Hauts Plateaux.
Hippocrepis Scabra, D C. Hauts Plateaux.
„ Ciliata, Willd. Barren hills.
„ Bicontorta, Lois. Hauts Plateaux.
„ Unisiliquosa, L. Desert.
Hedysarum Capitatum, Desf. Desert.
„ Humile, L. Hauts Plateaux.

Hedysarum Carnosum, Desf. In Weds.
„ Confertum, Desf. Desert.
Onobrychis Argentea, Boiss., var. Hauts Plateaux.
Ebenus Pinnata, Desf. Mountains.
Vicia Amphicarpa, Reboud. Hauts Plateaux.
„ Calcarata, Desf. Hauts Plateaux.
„ Lutea, L. Plains.
„ Sativa, L. Plains.
„ Onobrychioïdes, L. Mountains.
Ervum Hirsutum, L. Deserts.
Colutea Arborescens, L. Hauts Plateaux.
„ Frutescens, L. Biskra.
Lathyrus Clymenus, L., var. tenuiflora. Hauts Plateaux.
„ Hirsutus, L.
„ *spec. nov.*

Family, ROSACEÆ.

Neurada Procumbens, L. Desert.
Poterium Ancistroïdes, Desf. Desert.
„ Magnolii, Spach. Hauts Plateaux.
Rosa Canina, L. var (?). Hauts Plateaux.
Pyrus Longipes, Coss. Hauts Plateaux.

Family, TAMARISCINEÆ.

Tamarix Gallica, L. In weds and ravines.
„ Africana, Desf. Weds in the south.
„ Buonapartii, Reboud. Wed N'ça; Arab. "Atsal."
„ *Spec. nov.* Wed el Mia.

Family PORTULACEÆ.

Telephium Imperati, L. Hauts Plateaux.
Herniaria Fruticosa, L. Hauts Plateaux.
„ Hirsuta, L. Desert.
„ Cesserea, Reboud. Djelfa.
Gymnocarpus Decandrus, Desf. Desert; Arab. "Djefna."
Paronychia Nivea, Reboud. Djelfa.
„ Capitata, L. Desert.
„ Argentea, Lam. Desert beyond M'zab.

Polycarpon Bironæ, Gay. Hauts Plateaux.
Guerria Hispanica, L. Hauts Plateaux.
Minuartia Montana, Lafl. Hauts Plateaux.
„ Campestris, Lafl. Hauts Plateaux.

Family, CRASSULACEÆ.

Umbilicus Horizontalis, D C. Hauts Plateaux.
Pistorina Hispanica, Lam. Hauts Plateaux.
Sedum Album, L., var. Desert.
„ Altissimum, Poir. Hauts Plateaux.
„ Glandobiflorum, Guss. Salt Hills.
„ Pubescens, Vahl. Hills.
Crassula Rubens, L. Hauts Plateaux.

Family, SAXIFRAGEÆ.

Aïzoon Hispanicum, L. Desert plains.
Saxifraga Carpetana, Boiss. Rochers de Sel.
„ Spathulata, Desf. (?) Rochers de Sel.

Family, UMBELLIFERÆ.

Hottenacheria Buplexifolia, Feschm. Djelfa.
„ Polyodon, Coss. Hauts Plateaux.
Selinopsis Fœtida, Coss. Southern Desert.
Carum Mauritanicum, Bois. Desert.
Pimpinella Tragium, Vill. Hauts Plateaux.
„ Dichotoma, L. Hauts Plateaux.
„ Lutea, L. Southern Atlas.
Bupleurum Spinosum, L. Rocky Hills.
„ Semicompositum, Desf. Hauts Plateaux.
„ Rigidum, L. Hauts Plateaux.
Deverra Chlorantha, Coss. Desert.
„ Scoparia, Coss. Desert of the M'zab.
Ridolphia Segetum, Moris. Hauts Plateaux.
Chapsia Villosa, L. Hauts Plateaux.
Orlaya Maritima, Koch. Desert.
Daucus Aureus, Desf. Hauts Plateaux.
„ Parviflorus, Desf. Desert plains.
„ Setifolius, Desf. Desert.

Caucalis Leptophylla, L. Plains.
,, Mauritanica, L. Hauts Plateaux.
Turgenia Latifolia, Hoffm. Hauts Plateaux.
Scandia Australis, L. Hauts Plateaux.
Cachrys Pungens, Coss. Salt Lakes.
,, Tomentosa, Desf. Oases.
Smyrnium Olusatrum, L. Plains.
Biforis Testiculata, L. Plains.

Family, LORANTHACEÆ.

Arcentobium Oxycedri, Bïéb. Djelfa.

Family, CAPRIFOLIACEÆ.

Lonicera Implexa, Ait. Among bushes.

Family, RUBIACEÆ.

Gaillonia Reboudiana, Coss. Wed N'ça.
Asperula Hirsuta, Desf. Desert.
,, Lævigata, Manl. Southern Atlas.
Crucianella Patula, L. Hauts Plateaux.
Galium Tricorne, With. Hauts Plateaux.
,, Erutum, Hudson. Plains.
,, Setaceum, Lam. Hauts Plateaux.
,, Saccharatum, L. Desert plains.
,, Tunetanum, L. Hauts Plateaux.
,, Parviflora, Desf. Desert.
,, Parisiense, var. Tricocarpum, Reboud. Djelfa.
Callipeltis Cucullaria, Herm. Desert hills.

Family, VALERIANEÆ.

Centranthus Calcitropa, Desf. On hills.
Valerianella Primula, D C. Hauts Plateaux.
,, Stephanodon, Coss. Hauts Plateaux.
Valeriana Tuberosa, L. Hauts Plateaux.

Family, DIPSACEÆ.

Scabiosa Camelorum, Coss. Guerrara. M'zab deser
,, Maritima, L., var. Ochroleuca. Desert.

Scabiosa Monspeliaca, Coss. Desert.
„ Semipapposa, Solen. Desert.
„ (*spec. nov. ?*). Desert south of Waregla.

Family, CORYMBIFERÆ.

Bellis Sylvestris, Cyril. Plains.
„ Annua, L. Plains.
Phagnolon Rupestre, D C. Desert.
Nolletia Chrysocomoïdes, Coss. Desert.
Erax Asteriflora, Pers. Desert.
Micropus Bombycinus, Lag. Hauts Plateaux.
„ Supinus, L. Desert. In weds.
Rhanterium Adpressum, Coss. Rocky desert.
„ Suaveolens, Desf. Southern desert; Arab. "El Arfedj."
Inula Arabica, Desf. Plains.
„ Montana, L. Hauts Plateaux.
„ Crythmoïdes, L. Wed R'hir. Salt plains.
Francuria Crispa, Coss. Desert south of M'zab.
Pulicaria Arabica, Coss. Hauts Plateaux.
Asteriscus Graveolens, D C. M'zab desert.
„ Pygmæus, Coss. Deserts.
Pallenis Spinosa, Coss. Deserts.
Aurillea Radiata, Coss. M'zab desert.
Anthemis Tuberculata, Bois. Hauts Plateaux.
„ Chrysantha, Gay (?). Among rocks.
Cyrtolepis Alexandrina, Reboud. M'zab desert.
Cladanthus Arabicus, Coss. Dayats.
Achillea Santolina, L. Deserts.
Santolina Squamosa, Willd. Mountains.
Coleostophus Macrotus, Reboud. Hauts Plateaux.
Pyrethrum Furcatum, Willd. Desert.
Tanacetum Cinereum, Reboud. Wed R'hir.
Lasiopogon Muscoïdes, Reboud. Djelfa.
Filago Yussiæi, Coss. Desert plains.
Ifloga Fantanesii, Coss. Desert.
Leyssera Capillifolia, D C. Wells, oases of M'zab.
Chrysanthemum Myconis, D C. Oases.

Senecio Auriculatus, Bourg. Deserts.
,, Coronopifolius, Desf. Salt plains.

Family, CYNAROCEPHALEÆ.

Calendula Arvensis, L. Hauts Plateaux.
,, Suffruticosa, Vahl. Salt plains.
Othonna Cheirifolia, L. Desert plains.
Echinops Spinosus, L. Hauts Plateaux.
Xeranthemum Inapertum, Willd. Moist plains.
,, (*spec. nov.?*). Near Laghouat.
Stæpelina Dubia, L. Hauts Plateaux.
Carlina Sulphurea, Desf. Hauts Plateaux.
,, Microantha, Coss. Rochers de Sel.
Atractylis Cæspitosa, Desf. Rochers de Sel.
,, Prolifera, Boiss. Desert.
,, Cancellata, L. Desert.
,, Microcephala, Coss. Hauts Plateaux.
,, Flava, Desf. Souf.
Microlonchus Clusii, Spach. Hauts Plateaux.
Crupina Crupinastrum, Boiss. Rocky hills.
Centaurea Nicæensis, All. Hauts Plateaux.
,, (*spec. nov.?*), floris luteis.
,, Involucrata, Desf. Hauts Plateaux.
,, Lippii, L. Souf.
,, Eriophora, L. Hauts Plateaux.
,, Parlatoris, d' Heldr. Hauts Plateaux.
,, Pullata, L. Hauts Plateaux.
,, Pubescens, Willd. Plains.
,, Polyacantha, Willd. Desert.
,, Acaulis, L. Hauts Plateaux.
,, Sulphurea, Willd. Hauts Plateaux.
Leuzea Conifera, D C. Rocky plain.
Carduncellus Atlanticus, Coss. Plains.
,, Calvus, Boiss. Hauts Plateaux.
,, Multifidus, Boiss. Desert plain.
,, Pinnatus, D C. Hauts Plateaux.
Silybum Eburneum, Coss. Djelfa.
Onopordon Acaule, L. Hauts Plateaux.

Onopordon Ambiguum, Forsk. Hauts Plateaux.
Carduus Macrocephalus, Desf. Hauts Plateaux.
„ Arenarius, Desf. Deserts.
„ Echinatus, Desf. Deserts.
Rhaponticum Acaule, D C. Hauts Plateaux.
Jurinea Humilis, D C., var. Hauts Plateaux.

Family, CHICORACEÆ.

Kalpinea Linearis, Pall. Rochers de Sel.
Hedypnoïs Pendula, D C. Plains.
Catananche Arenaria, Coss. Desert.
„ Cærulea, L. Desert.
„ Cæspitosa, Desf. Hauts Plateaux.
„ Lutea, L. Plains.
Hypochœris Neapolitana, D C. M'zab Desert.
Podospermum Laciniatum, D C. Rochers de Sel.
Tragopogon Porrifolius, L. Plains.
Scorzonera Undulata, Vahl. Desert.
„ Dichotoma, Vahl. El Kantara.
Asterothria Hispanica, D C. Hauts Plateaux.
Spitzelia Cupuligera, Reboud. Desert.
Taraxicum Dens Leonis, L. Plains.
Phænopis Viminea, D C. Hauts Plateaux.
Andryala (?) Desert.
Picridium Tingitanum, Desf. Desert.
Zollioferia Angustifolia, Coss. Guerrara, M'zab desert.
„ Resedifolia, Coss. Wed R'hir.
Sonchus Divaricatus, Desf. Deserts.
„ Maritimus, L. Biskra.
„ Spinosus, D C. Desert.
„ Tenerrimus, L. Hauts Plateaux.
Lactuca Saligna, L. Plains.

Family, CAMPANULACEÆ.

Campanula Erinus, L. Hauts Plateaux.
„ Filicaulis, Reboud. Hauts Plateaux.
„ Rapunculus, L. Hauts Plateaux.
Specularia Falcata, D C. Dayats.

Family, ERICINEÆ.

Arbutus Unedo, L. Wooded hills.

Family, PRIMULACEÆ.

Androsace Maxima, L. Hauts Plateaux.
Asterolinum Stellatum, Lam. Hauts Plateaux.
Samolus Valerandi, L. Plains.

Family, OLEACEÆ.

Olea Europea, L. Rochers de Sel.
Phillyrea Angustifolia, L. Hauts Plateaux.

Family, JASMINEÆ.

Jasminum Fruticum, L. Hauts Plateaux.

Family, APOCYNEÆ.

Nerium Oleander, L. Weds, everywhere.

Family, ASCLEPIADÆ.

Dæmia Cordata, Reboud. Desert of M'zab.

Family, GENTIANÆ.

Erythræa Centaurea, Pers. Hauts Plateaux.
,, Ramosissima, Pers. Near Biskra.
,, Pulchella, Frios. Hauts Plateaux.
Chlora (?) Messâad.

Family, CONVOLVULACEÆ.

Convolvulus Evolvuloïdes, Desf. Wed R'hir.
,, Cantabrica, L. Dayats.
,, Lineatus, L. Hauts Plateaux.
,, Suffruticosus, L. Desert.

Family, CUSCUTEÆ.

uscuta. *Spec. nov. ?* Neighbourhood of Charef.

Family, BORRAGINEÆ.

Heliotropium Supinum, L. Deserts.
„ Europæum, L. Hauts Plateaux.
„ Crispum, Desf. Souf.
Echium Humile, Desf. Desert.
Echiochilon Fruticosum, Desf. Desert.
Nonnea Micrantha, Boiss. Plains.
Anchusa Tinctoria, Tausch. Desert of M'zab.
Lithospermum Callosum, Vahl. M'zab desert.
„ Apulum, L. Deserts.
„ Orientale, L. Souf.
Arnebia Viviani, Coss. Desert.
Myosotis Stricta, Lam. Hauts Plateaux.
„ Hispida, Schalt. Hauts Plateaux.
Echinospermum Vahlianum, Lam. Plains.
„ Patulum, Lam. Hauts Plateaux.
Cynoglossum Cheirifolium, L. Oases and dayats.
Nochelea Stellulata, Reboud. Plains.

Family, SCROPHULAREÆ.

Verbascum Bærrhoarii, L. Hauts Plateaux.
Celsia Laciniata, Poir. Hauts Plateaux.
Anarrhinum Fruticosum, Desf. Hauts Plateaux.
Antirrhinum Orontium, L. Plains and hills.
„ Ramosissima, Coss. Wed M'zab.
Scrophularia Frutescens, L. Souf.
„ Deserti, Coss. Southern desert.
Linaria Marginata, Desf. Hauts Plateaux.
„ Fruticosa, Desf. M'zab desert.
„ Laxiflora, Desf. Plains.
„ Rubrifolia, Robert. Hauts Plateaux.
„ Scariosa, Lam. Plains.
„ Triphylla, Mill. Plains.
„ Reflexa, Desf. Cultivated land.
„ Simplex, D C. Hauts Plateaux.
„ Virgata, Desf. Plains.
Veronica Anagallis, L. By springs and streams.

Veronica Agrestis, L. Plains.
„ Beccabunga, L. Oases, Wed R'hir.
„ Præcox, All. Desert.

Family, OROBANCHEÆ.

Phelipæa Arenaria, Wahl. Desert.
„ Lutea, Desf. Plains.
„ Lavandulacea, Frisch. Aïn el Ibel.
„ Violacea, Desf. Desert.
Orobanche Fœtida, Desf. Plains and desert.
„ (?) Sidi Maklouf.
„ Cornua, Lahl. Desert.

Family, VERBENACEÆ.

Verbena Supina, L. Southern deserts.

Family, LABIATÆ.

Thymus Hirtus, Willd.; var. Capitatus, Boiss. Hauts Plateaux.
Thymus Piperella, L. Deserts.
„ Guyonii, Coss. Hauts Plateaux (rariss.).
Calamintha Alpina, L. Mountains.
Salvia Argentea, L. Northern deserts.
„ Ægyptiaca, D C. Southern deserts.
„ Phlomoïdes, Coss. Deserts.
„ Lanigera, Poir. Hauts Plateaux.
„ Verbenacea, L. Plains.
Rosmarinus Officinalis, L. Hills.
Ziziphora Hispanica, L. Barren hills.
Sideritis Deserti, Reboud in litt. Deserts.
„ Incana, L. Hauts Plateaux.
„ Montana, L. Hauts Plateaux.
Marrubium Supinum, L. Moist plains.
„ Vulgare, L. Hauts Plateaux.
Lamium Amplexicaule, L. Oases and plains.
Phlomis Biloba, Desf. Hauts Plateaux.
Teucrium Campanulatum. Rocky weds.

Teucrium Flavum. Hauts Plateaux.
„ Polium. Rocky hills.
„ (?) Dj. Senalba.
Ajuga Iva, Schreb. Hauts Plateaux.

Family, GLOBULARIÆ.

Globularia Alyssum, L. Hauts Plateaux.

Family, PLUMBAGINEÆ.

Statice Bonduellii, Lent. Desert and salt marshes.
„ Cordata, Guss. Salt deserts.
„ Cyrtostachys, De Girard. Salt desert.
„ Echioïdes, L. Deserts.
„ Speciosa, L. Salt deserts.
„ Thouini, Coss. Salt marshes and deserts.
„ (*spec. nov.?*) Floribus luteis, ramosiss. Waregla.
„ (*spec. nov.?*) Floribus cæruleis, patula. Waregla.
Limoniastrum Guyonianum, Coss. Deserts.
Plumbago Europæa, L. Hauts Plateaux.

N.B.—The statices are by far the most brilliant ornaments of the salt plains or "chotts" and "sebkhas," which extend from Waregla to Biskra, through the Wed R'hir and along the whole of the Djereed almost to Tripoli. As the traveller descends from the high lands, the effect of a carpet or broad fringe of these plants in the month of May round a shallow salt-encrusted pool is like the richly enamelled setting of a vast diamond glistening in the sunlight. The various species are often grouped side by side with most harmonious blending of colours, the rich yellow predominating in large patches, with deep and pale blue forming as it were the groundwork, and the white occasionally taking its place.

Family, PLANTAGINEÆ.

Plantago Coronopus, L. Hauts Plateaux.
„ Albicans, L. Deserts.
„ Amplexicaulis, Coss. Deserts.

Plantago Ciliata, Desf. Deserts.
„ Cynops, L. Desert.
„ Parviflora, Desf. Desert.
„ Lagopus, L. Deserts.
„ Ovata, Forskal. Deserts.
„ Psyllium, L. Deserts.

Family, SALSOLACEÆ.

Beta Vulgaris, L. Hauts Plateaux.
Blitum Virgatum, L. Hauts Plateaux.
Salicornia Fruticosa, L. Salt lakes.
Echinopsilon Muricatum, Reb. Salt plains.
Chenopodium Maritimum, L. Salt plains.
Caroxylon Articulatum, Coss. Salt plains.
Salsola Vermiculata, L. Salt plains. Arab. "El Adjerem."
„ Fœtida, L. Salt plains. Arab. "Rent."
„ Mollis, Desf. Salt plains.
„ Muricata, L. Salt plains.
„ (*spec. nov.?*). Dzouïa.
Næa Spinosissima, Reb. Hadjira (desert ravine).
Anabasis Articulata, Reb. Hadjira.
GENUS NOVUM (?). 3 species. Salt plains near Waregla, and in the Wed el Mia.

N.B.—The Salsolaceæ, though without the beauty of the preceding class, are the most abundant family of plants in the "chotts." A more careful research will doubtless reveal many more species. Most of the above were first pointed out by Dr. Reboud, when accompanying a flying column of reconnaissance, and without the opportunity of accurately investigating the district.

Family, AMENTACEÆ.

Polycnemum Fontanesii, Reb. Djelfa.

Family, POLYGONEA.

Polygonum Bellardi, All. Hauts Plateaux.
Calligonum Comosum, Desf. Deserts.

Rumex Bucephalophorus, L. Plains.
„ Lacerus, Reb. Deserts.
„ Roseus, L. Deserts and plains.
„ Thyrsoïdes, Desf. Hauts Plateaux.

Family, THYMELEÆ.

Passerina Hirsuta, L. Salt plains.
„ Microphylla, Coss. Desert.
„ Tarton-raira, D C. Hauts Plateaux.
„ Virescens, Coss. Desert hills.
„ Virgata, Desf. Hauts Plateaux.

Family, BALANOPHOREÆ.

Cynomorium Coccineum, L. Salt plains.

Family, EUPHORBIACEÆ.

Euphorbia Buplevroides, Desf. Hauts Plateaux.
„ Chamæsyce, Lam. Plains.
„ Cornuta, Pers. Plains.
„ Falcata, L. Plains.
„ Guyoniana, Boiss. Deserts.
„ Helioscopia, L. Hauts Plateaux and oases.
„ Pubescens, Vahl. Salt plains and marshes.
„ Heterophylla, Desf. Salt plains.
Mercurialis Annua, L. Hauts Plateaux.

Family, CUPULIFERÆ.

Quercus Ballota, Desf. On all the hills in the northern Sahara. Arab. "Bellout."
„ Coccifera, L. Northern Sahara.

N.B.—The acorns of both these species are carefully collected and used as food by the Bedouin.

Family, GNETACEÆ.

Ephedra Fragilis, Desf. Desert hills.
„ (*spec. nov. ?*). Rocky hills of M'zab.
„ Altissima, Desf. Northern hills of Sahara.
„ Distachya, L. Southern side of Atlas.

Family, CONIFERÆ.

Pinus Aleppensis, Desf. Mountains.
Juniperus Macrocarpa, Desf. Hauts Plateaux.
,, Oxycedrus, L. Hauts Plateaux.
,, Phœnicea, L. El Kantara.

MONOCOTYLEDONS. Family, ORCHIDEÆ.

Aceras Anthropophora, R. Br. Hauts Plateaux.
Ophrys Lutea, Cuv., var. . Hauts Plateaux.
Limodorum Abortivum, L. Hauts Plateaux.

Family, AMARYLLIDEÆ.

Corbularia Monophylla, Reb. Hauts Plateaux.

Family, IRIDEÆ.

Moræa Sisyrinchium, Coss. Deserts and plains.
Iris Scorpioïdes, Desf. Plains.
,, Xyphium, L. Hauts Plateaux.
Trichoneusa Bulbocodium, Sebast. Plains.
,, Raniflora, Henon. Hauts Plateaux.
Gladiolus Ludoviciæ, Coss. Hauts Plateaux.

Family, ASPARAGINEÆ.

Ruscus Aculeatus, L. Hauts Plateaux.
Asparagus (?). Messâad.

Family, ALISMACEÆ.

Ruppia Ræcullata, Coss. Tuggurt.

Family, LILIACEÆ.

Tulipa Celsiana, L. Plains.
Gagea Reticulata, Schultz. Deserts.
Ornithogallum Arabicum, L. Hauts Plateaux.
,, Narbonense, L. Plains.
,, Sessiliflorum, Desf. Hauts Plateaux.
,, Umbellatum, L. Hauts Plateaux.
,, Fibrosum, Desf. Desert.

Allium Chamæmolys, L. Plains.
„ Ampiloprasum, L. Hauts Plateaux.
„ Roseum L. (Floribus albis). Sandy desert.
„ Pallens, L. Hauts Plateaux.
„ Sphærocephalum, L. Hauts Plateaux.
„ Odoratissimum, Desf. Souf.
„ (*spec. nov.?*). Waregla Desert.
Botryanthus Odorus, Kunth. Hauts Plateaux.
Scilla Peruviana, L. Hauts Plateaux.
„ Autumnalis, L. Rocky hills.
„ Villosa, Desf. Souf.
Asphodelus Fistulosus, L. Dayats.
„ Luteus, L. Hauts Plateaux.
„ Pendulinus, Coss. Desert.
„ Ramosus, L. Plains.

Family, COLCHICACEÆ.

Colchicum Bulbocoïdes, Stev. Deserts.
Merendera Filifolia, All. Plains.
Erythrostrictus Punctatus, Schlech. Wed N'ça. M'zab Desert.

Family, JUNCEÆ.

Juncus Striatus, Schousboë. Djelfa.

Family, CYPERACEÆ.

Cyperus Conglomeratus, Rottb.; var. Arenarius. M'zab Desert.
„ Rotundus, L. Waregla.
Carex Divisa, Hudson. Djelfa.
Scirpus Holoschænus, L. Hauts Plateaux.

Family, GRAMINEÆ.

Lygeum Spartum, L. Throughout the Sahara. The principal dependence of both horse and camel for forage during a journey.
Phalaris Brachystachys, Lam. Hauts Plateaux.

Permisetum Ciliare, Lam. Deserts.
Piptatherum Miliaceum, Coss. Plains.
Stipa Gigantea, Poir. Barren rocky ground.
,, Barbata, Desf. Rocky ground.
,, Parviflora, Desf. Rocky hills.
,, Tenacissima, Desf. Sandy desert. Arab. "En Nessi."
,, Tortilis, Desf. Rocky ground.
Aristida Adsensionis, L. Desert. Arab. "Selian."
Arthrotherum Pungens, Poir.; var. . Salt plains.
,, Plumosum, Nees. Salt plains.
,, Obtusum, Nees. Salt plains.
,, Ciliatum, Nees. Salt plains.
,, (*spec. nov.?*). Desert near Guerrara.
,, (*spec. nov.?*). Between Tuggurt and Souf.
Agrostis Alba, L., var. Coarctata. Hauts Plateaux.
,, Verticillata, L. (?). Desert; Hadjira.
Polypogon Monspeliense, L. Hauts Plateaux.
Ammochloa Subacaulis, Beauv. Desert.
,, Pungens, Boiss. Rocky hills.
Echinaria Capitata, Desf. Naked hills.
Avena Barbata, Beauv. Hauts Plateaux.
,, Pratensis, W. Hauts Plateaux.
Arrhenatherum Elatius, Koch. Plains.
Eragrostes Vulgaris, Coss., var. . Desert.
Poa Bulbosa, L. Hauts Plateaux.
,, ,, var. Spiculis viviparis. Djelfa.
Melica Ciliata, L. (?). Hauts Plateaux.
,, Cuparis, Guss. Hauts Plateaux.
Kœhleria Pubescens, R. Br. Hauts Plateaux.
,, ,, var. Longè aristata. Desert.
,, Valesiaca, Jourd. Hauts Plateaux.
Waugenhirmia Lima. Reboud. Djelfa.
Cynosurus Elegans, Desf. Hills.
,, Echinatus, L. Plains.
Festuca Triflora, Desf. Plains.
,, Divaricata, Desf. Desert.
,, Cynosuroïdes, Desf. Desert.

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